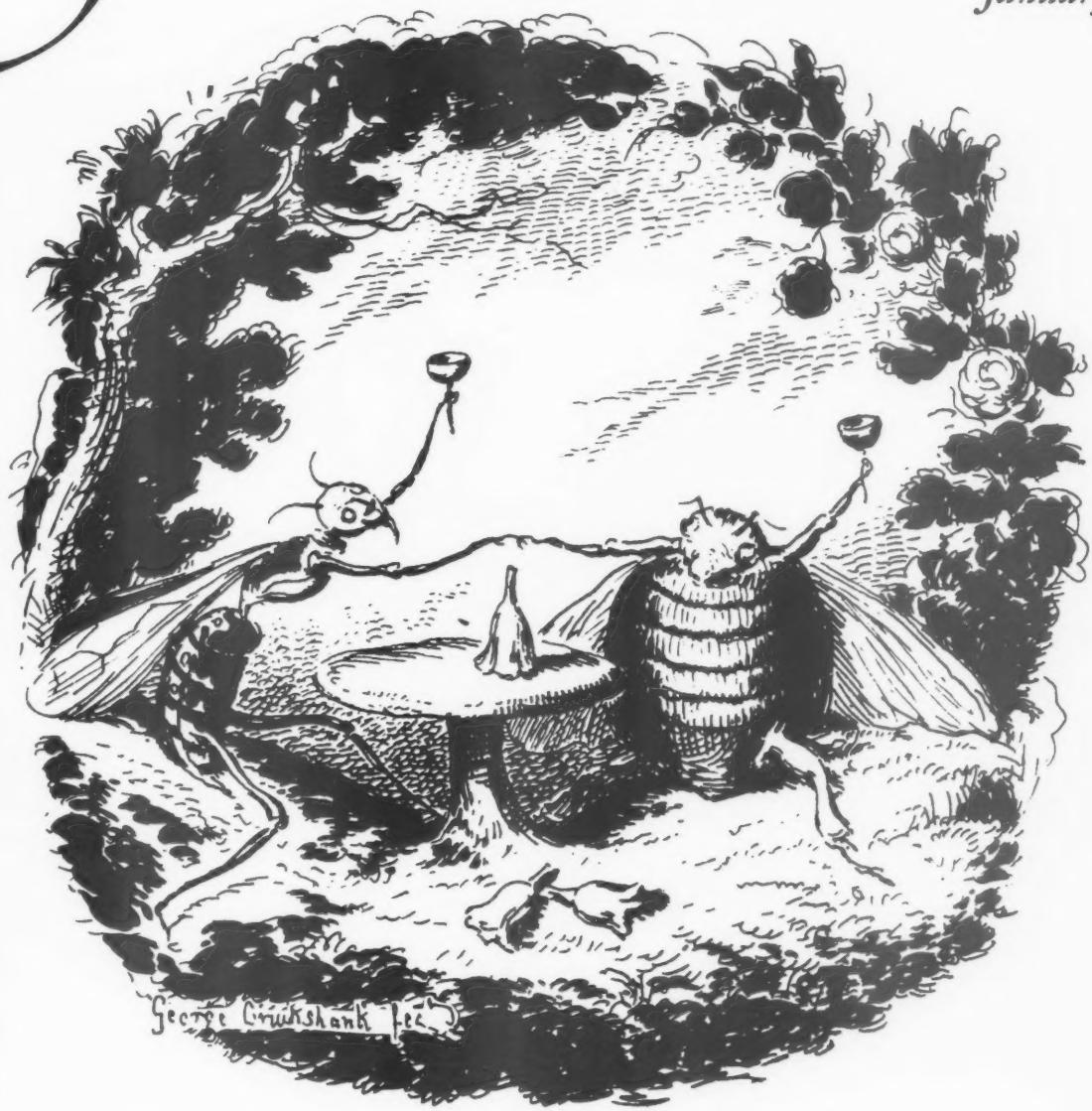
THE Johns Hopkins MAGAZINE
January 1952



"Our cups shall o'erflow
With feelings that glow"

The Johns Hopkins Magazine presents a selection of fables for the New (or any) Year

Captain Lewis L. Millett Medal of Honor

When his Infantry company was pinned down by heavy fire near Soam-Ni, Korea, Captain Millett charged alone into the enemy positions, throwing grenades, and clubbing and bayoneting the enemy. Inspired by his example, the attacking unit routed the Reds, who fled in wild disorder.

"It's an uphill struggle," says Captain Millett, "to build a working peace. Unfortunately, the only argument aggressors respect is *strength*. Fortunately we've learned this lesson in time.

"*You* can help build our strength—the defense-line of peace—by buying United States Defense Bonds. Every Bond is a declaration to the world—especially to would-be aggressors—that we aim to insure peace.

"I think a secure peace is worth working for. If you think so, too, buy U. S. Defense Bonds now!"

★ ★ ★

Remember that when you're buying bonds for national defense, you're also building a personal reserve of cash savings. Remember, too, that if you don't save *regularly*, you generally don't save at all. Money you take home usually is money spent. So sign up today in the Payroll Savings Plan where you work, or the Bond-A-Month Plan where you bank. For your country's security, and your own, buy United States Defense Bonds now!

Peace is for the strong... Buy U. S. Defense Bonds now!

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THE Johns Hopkins MAGAZINE

VOLUME III January, 1952 NUMBER 4

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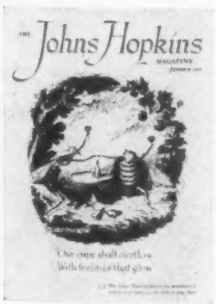

The Cover

The Johns Hopkins Magazine departs from its usual photographic cover style this month to fall in step with the lighter holiday mood which will prevail when this issue reaches most readers. The two cheerful bugs are from a fine collection of fables in the University's John Work Garrett Library and are the products of one of the leading fable illustrators of all time, George Cruikshank. More pictures from the collection accompany the article on Page 15.

In This Issue

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The visitors depart; the lights in wards and corridors are dimmed. But the work of a hospital goes on. Here, in pictures, are the quietly dramatic night activities which most people never see.

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Turbulent forces may be seen in many things: smoke from a cigarette, water from a tap. Some are helpful; others work against us. But important as they are, much about them is still unknown.

FABLES FOR THE NEW (OR ANY) YEAR 15
Fables are usually classed as children's stories, but they are often more fun for adults. Here is proof of that statement, from the fine John Work Garrett Collection at Johns Hopkins.

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Hospital At Night

After dark, many activities increase

At nine o'clock each night, its visitors depart. The lights in its corridors, its wards, its private rooms are dimmed. A hush falls over its great bulk; and except for the measured breathing, the restless stirring of its occupants, there is no sound from many of its parts. To the passerby, to its patients, and even to many of its staff, the Hospital is asleep.

But actually, a great hospital *never* sleeps.

Even as the tempo slows in most of its sections, it begins to quicken in others as the night deepens. In the accident room, where men always stand ready to meet the emergencies which daily occur in a city of a million inhabitants, there is an awareness that at night there will be the greatest need for their skills. In the obstetrics clinic, a woman calls a nurse; it feels, she says, as though it may happen soon. In the nursery a baby cries, and soon there is a chorus; the time for 2 a.m. feedings is near. In an operating room, unused for a few hours, a technician begins his check of equipment which in the morning must function well; for it must help a surgeon save a life.

The quiet sense of service grows at night

There is always drama in a hospital; but in many ways the drama is greatest at night. It is then that men and women, unseen by most persons, perform many services without which a hospital could not be the efficient place it is. It is then that floors are scrubbed until they gleam; reports are studied; plans are laid for the next day's treatment which may bring men back to health. It is then that the unexpected occurs: the tricky operation which must be performed now, not wait until morning, or a woman may die; the appearance of a two-year-old and mother at 4 a.m.—the child has just swallowed a quarter, the mother says, and the doctors fish it out without waiting to ask how a child happened to be eating a quarter at that hour of night, anyway.

On these pages, in pictures, are some such things. They happened on a typical night at the Johns Hopkins Hospital not long ago.

Photographs for The Johns Hopkins Magazine by Robert M. Mottar

In the powerhouse: all-night vigil; in accident rooms: a quickened pace.

◀ A nurse gives 2 a.m. bottle to baby in Hopkins' Harriet Lane Home

A frightened couple receives reassuring treatment in the Hopkins accident room for a minor but painful injury.

◄ Wearing a "binocular loupe," an ophthalmologist writes his report.

From registrar, boy inquires about hospitalized parent's progress.

From x-rays, doctor learns patient's lung condition.

In operating rooms, emergency surgery occurs at night.

Before another operation, nurse and orderly check supply lists.

It was a 'routine' night

These are the activities of a "routine" night at Johns Hopkins. They took place between 9 p.m., when visitors left, and 7 a.m., when the first rays of dawn began poking up above the Hopkins dome. They can be found, with variations and with different persons in some of the central roles, on any night; tonight.

But in the lives of many, this particular night was far from routine. For the three women who gave birth to babies, for the man who underwent a midnight surgical operation, for the people who were rushed to the accident room for emergency treatment, it was a very important night—perhaps one of the most important in their lives. Just as tonight will be for those scores of other persons whom the Hospital knows it will be called upon to serve, and for whom it must be prepared in a way which can never be called "routine."

Who most of them are, or in what ways their needs for treatment will occur, neither the Hospital nor they themselves can now know; but whoever and whatever will make little difference in one regard: the Hospital must be ready.

At 2 a.m., a doctor scrubs up ➤ for an operation that cannot wait.

Behind the scenes, indispensable work

Every institution has its indispensable people behind the scenes. But in the Hospital, the part they play is unique: upon their efficiency and their faithfulness, human lives depend. It is at night that this is most apparent. While patients sleep, the Hospital services go on smoothly—due to the presence of people like these.

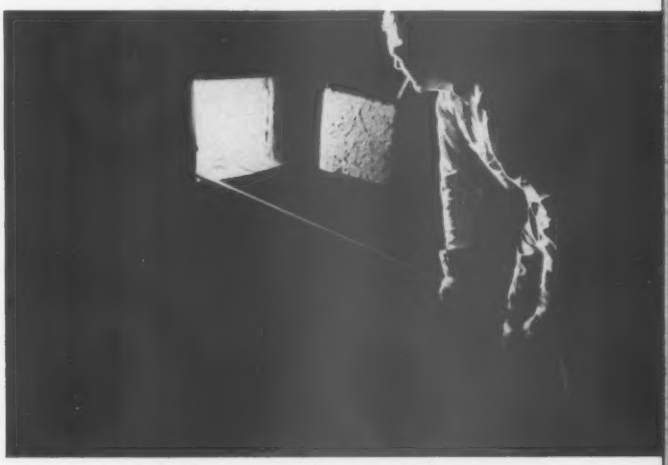
The guards on the Hospital force are on regular rounds.

The cleaners make the waiting rooms ready for another day.

The freight-elevator operator hauls cargoes of supplies.

The plumber dons mask and gown to repair a steamy sterilizer.

The telephone operators tie the Hospital to a city outside.



The firemen keep furnaces stoked throughout the night.

The pasteurizer prepares to bottle a day's milk supply.

The business-office man tabulates the day's charges.

The butcher prepares to meet enormous needs for food.

The receiving-platform men check dawn deliveries of baked goods.

The porters push milk and bread through tunnels to Hospital kitchens.

Light over door (*top of picture*) calls nurse to the room of a patient.

At dawn, a baby is born

This night has been many things to many different people. A light goes on above the door to a private patient's room (*left*); a nurse silently answers the summons from her desk, the nerve-center of the hall. Morning nears; nurses and aides place wash basins and toothbrush cups on carts (*right*), ready to be taken to the bedsides of people who may be awaiting surgery, or tests, or the verdicts from examinations made the day before.

The receiving platforms are a bustle of activity. Food trucks arrive, bringing the huge quantities of supplies needed to feed thousands during the day—supplies for which Hospital buyers have shopped in the early hours. And in an obstetrical delivery room, there is a dramatic experience for a young mother, and a busy one for the staff: her first baby arrives (but the Hospital's third tonight), just as dawn begins to break grayly over the Johns Hopkins dome. At the moment, however, nearly everyone is too engrossed to notice the night has ended.

Gently, expertly, an obstetrician delivers third baby born tonight.

Penicillin ointment is put in newborn baby's eyes.

Identity bracelet is put on ankle, just after birth.

Night's end: dawn lights the sky above the still-dark Hospital.

PATTERNS OF CHAOS

Turbulent forces are studied by Johns Hopkins aeronautical engineers

By STANLEY CORRSIN

HAVE you ever stopped to watch smoke billowing out of a chimney? On a calm day it moves generally upward; but there is much irregular meandering in its small-scale motions. On a windy day the wind overshadows this slow, buoyant rising and "washes" the smoke along. Again the smoke-cloud motion, now chiefly due to the wind, shows not only a gross pattern but also a thoroughly chaotic motion of various parts relative to each other.

This highly irregular (or "random") motion, observable in either the free convection flow or in the natural wind, is an illustration of "turbulence." Even when it appears to make up only a minor part of the total motion, the turbulence may technically be the most important characteristic of a flow phenomenon.

Most of the liquids and gases in natural phenomena are apparently in a state of turbulent agitation. The earth's molten interior, its oceans and rivers, its atmosphere, the material in the stars themselves, and even the tenuous clouds of interstellar gas all give evidence of chaotic flows. Typical exceptions are the very-low-velocity terrestrial flow phenomena of lava streams, glaciers, and seepage in soils.

Most of the flows in human technology are also turbulent: the flows in house plumbing systems, gas pipes, ventilation ducts and outlets, egg-beaters, engines, and heating systems, as well as various parts of airplanes, ships, and automobiles, both inside them and over their outside surfaces.

Biological fluid flows seem to constitute a large class in which turbulence, if it occurs, plays no central role; the velocities and dimensions involved are relatively small. However, the characteristic swishing sound which permits diagnosis of heart "murmur" is probably generated by local turbulence in blood flow. Also, the Physiological Division of the Department of Medicine, the Johns Hopkins Hospital and Medical School, recently had occasion to worry about how to produce high turbulence levels: a dye-injection technique for measurement of the blood-flow rate required good mixing of dye and blood, and mixing is one of the chief effects of turbulent motion.

Besides its practical importance, the study of

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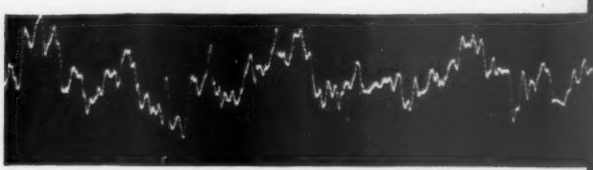
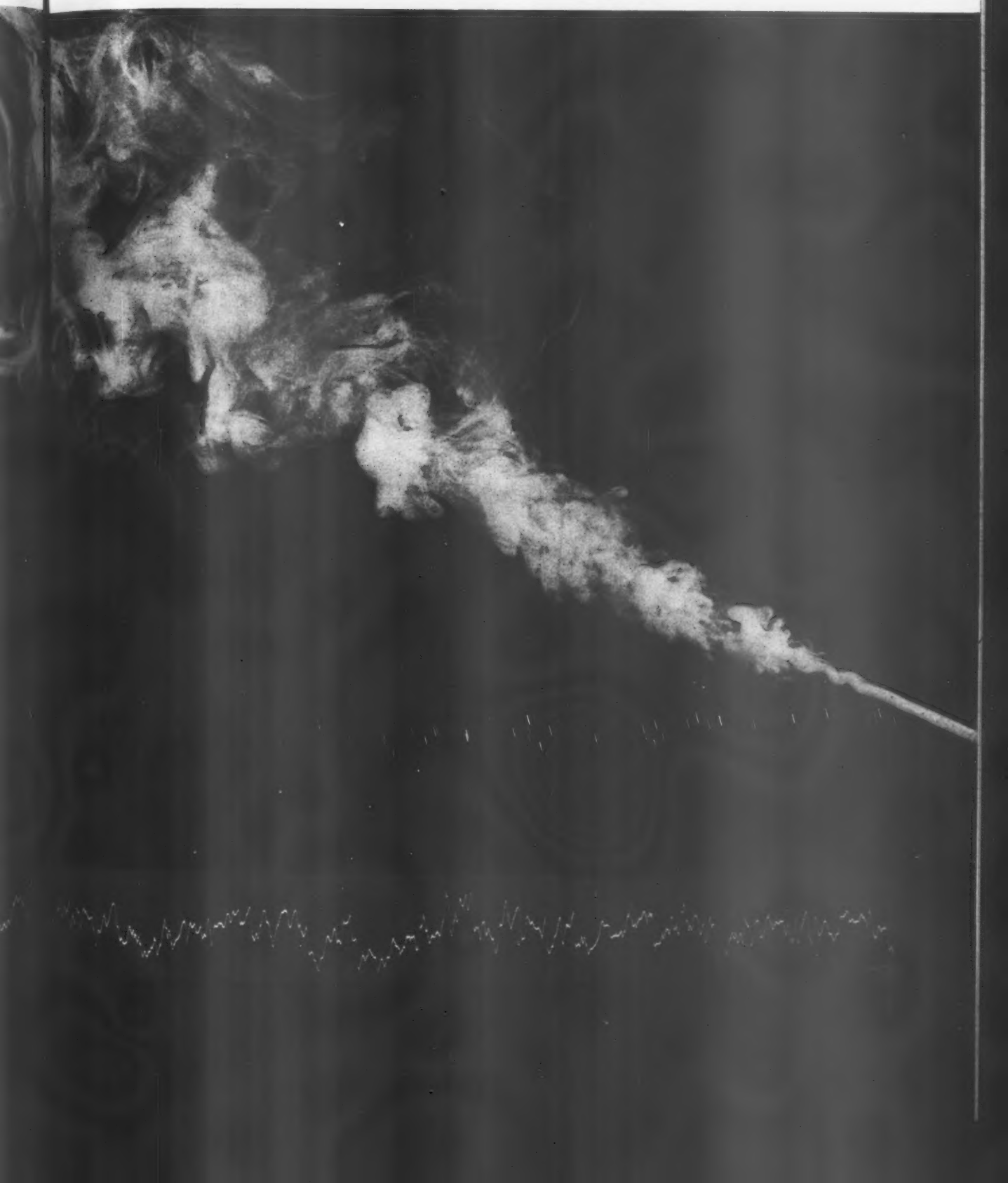
Overleaf: familiar patterns of chaos

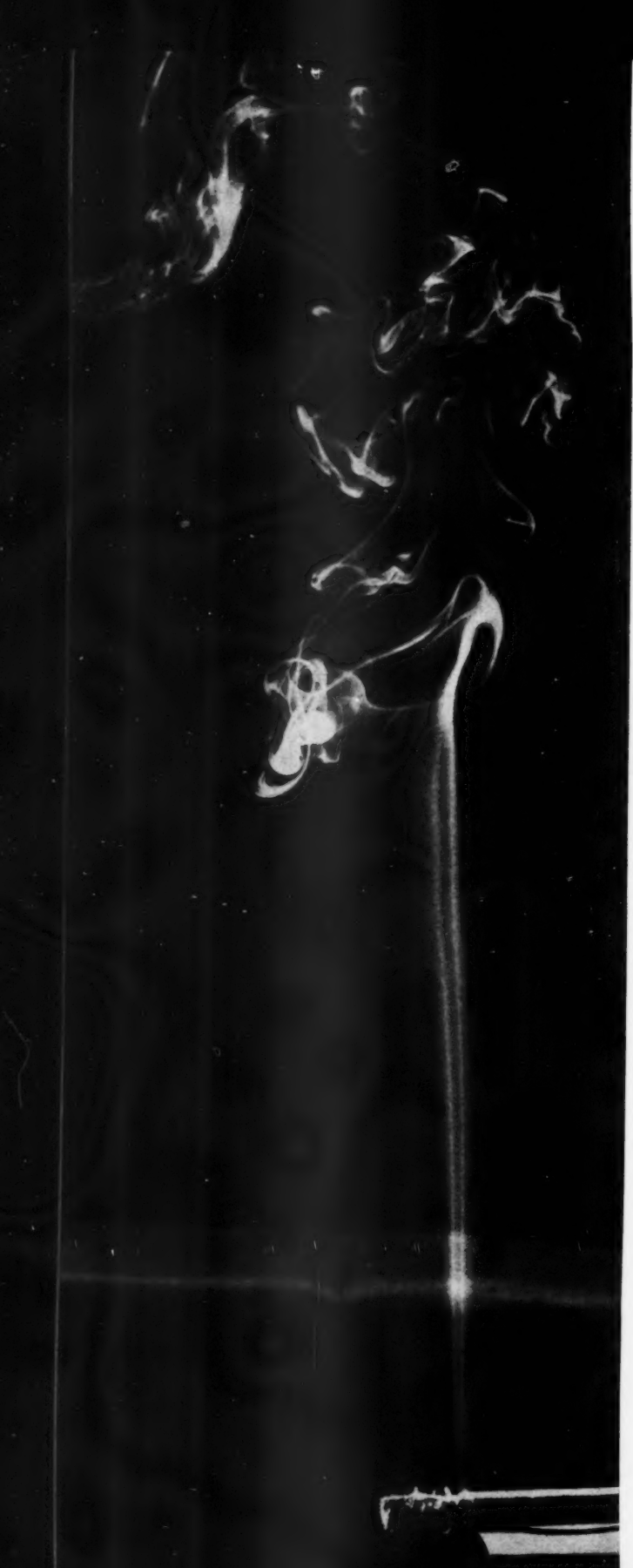


The jagged, chaotic lines of an oscillogram record the fluctuations in a fluid stream such as in a wind tunnel. In larger picture, a jet of smoke blown from a pipe emerges in smooth, laminar fashion, then breaks to become violently turbulent.

National Bureau of Standards; Werner Wolff, Black Star

Dr. Corrsin is Associate Professor of Aeronautics at Johns Hopkins.





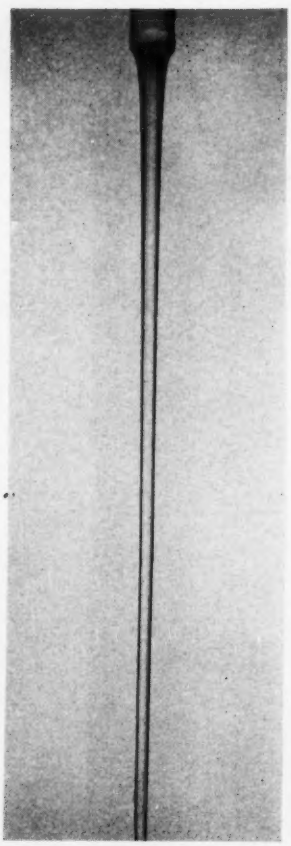
Familiar Patterns of Chaos

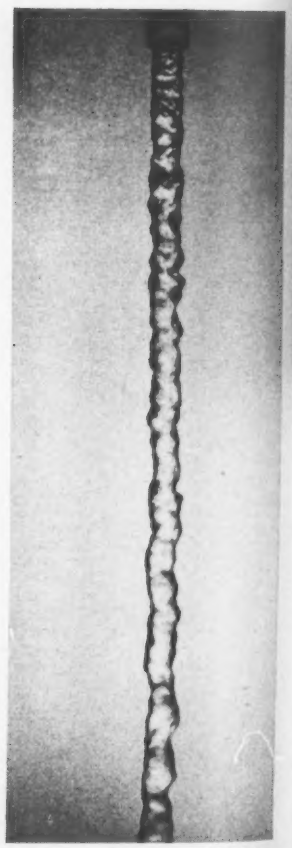
The smoke from a cigarette or a ship's stack . . .

The water from a faucet . . .

The waves as a pellet moves through the air . . .

Turbulence phenomena take many forms





Werner Wolff, Black Star

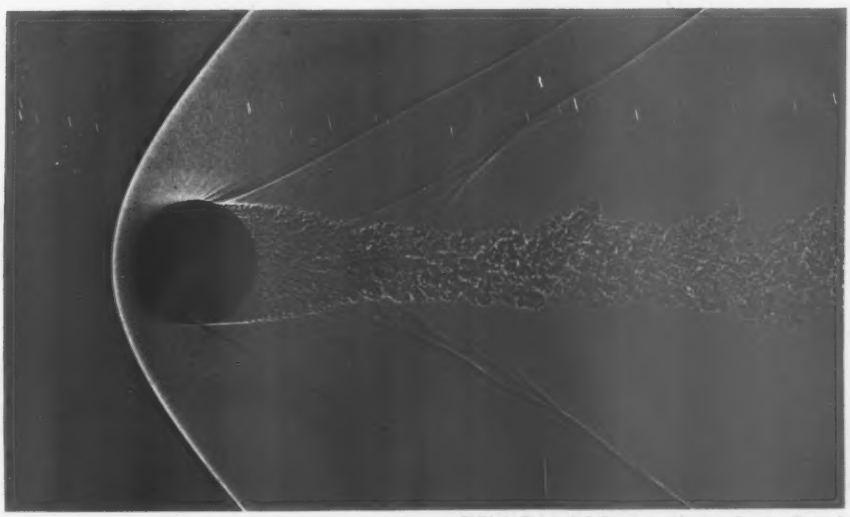
Whether water running from a faucet flows smoothly or turbulently depends upon speed at which it moves. Running slowly (*left*) it flows smoothly. Running fast (*right*) it is quite turbulent.

◄ **From cigarette, smoke rises smoothly before becoming turbulent.**

Werner Wolff, Black Star

Standard Oil Co. (N.J.)

In an open, breezy place like New York harbor (*above*), smoke behaves differently from that in preceding photographs. Here the turbulence is due largely to wind, rather than to forces within smokestream itself.



Ballistic Research Laboratory, Aberdeen Proving Ground

Moving through air at supersonic speed, a sphere leaves an uneven turbulent wake. Shock waves, analogous to bow and stern waves from a ship, precede and trail the moving pellet.

genuinely chaotic motion of gases and liquids is one of the more intriguing and complex unsolved problems in classical physics, i.e. the non-relativistic and non-quantized physics of the world that we can feel, see, and hear. And apart from the challenge of the problem is its fascination: the randomness seen in so many natural phenomena but often hidden in the works of man. This may be why some people smoke; it certainly adds to the hypnotic quality of a bonfire or a good storm.

LOOKING into the problem of turbulence, we are immediately faced with an apparent paradox: even with the smoothest and most symmetrical boundaries obtainable, flowing air or water will always change over from a smooth, or "laminar," state to the thoroughly erratic turbulent state when its velocity gets high enough. Apparently the first one to observe in print that there are two such sharply distinguishable states of flow, and to demonstrate a principal effect of the change, was a German scientist by the name of G. Hagen in 1839. Thanks perhaps to the obscurity of the journal in which he published (Poggendorf's *Annalen*) and to his esoteric choice of units (Prussian ounces, Parisian inches, etc.), his work has received less recognition than the independent but later (1842) publications of a French physician, J. L. M. Poiseuille. Both men were chiefly interested in the laminar state—Poiseuille's obvious motivation was an interest in blood flow—and both established empirically what is commonly called, outside of Germany, "Poiseuille's Law" for the total rate of laminar flow through a round tube under a given pressure difference between inlet and outlet.

Hagen also measured the influence of pipe diameter and water temperature upon the velocity at which there is transition from laminar to turbulent flow. He came perilously close to anticipating by nearly half a century the great discovery of Osborne Reynolds in 1883—that for a given experimental arrangement, the transition from smoothness to turbulence occurs at a particular value of a single parameter: the product of fluid velocity, density, and pipe diameter, divided by the fluid viscosity. This parameter is now called "Reynolds' Number," and its basic physical significance is as a measure of the ratio of inertial flow effects to frictional flow effects.

THE problem of how an unstable laminar flow breaks down so catastrophically into the turbulent state is an unsolved one. In this account, we shall look only at the problem of fully developed turbulence. Reynolds also played a key part in formulating this problem by deducing, in 1895, a special form of the equations of fluid motion, pertinent to turbulence. These equations have still not been solved, and in fact are not in themselves sufficient to determine a solution—a situation common to statistical theories.

Little basic progress was made in the field for the next thirty-five years. The high spot was an idealized analysis by Sir Geoffrey Taylor, in 1921, of the diffusive effects of turbulence. In 1935–38, Taylor laid the theoretical foundations for much of the present turbulence theory, especially in postulating the idealized concept of an "isotropic" turbulence, in which the properties are independent of the direction in the fluid. His formulation was generalized in 1937 by Th. v. Kármán and L. Howarth of the U. S. and England, respectively.

Since then the level of activity in both theoretical and experimental research on the nature of turbulent flow has increased greatly. However, the total effort is still very far below that in more dramatic flow problems such as supersonic aerodynamics.

WITH turbulence having such a highly chaotic character, it is not surprising that two of its most striking effects are the dispersal and/or mixing-up of initial concentrations of any property or contaminant. Smoke is the most convenient guinea pig for such

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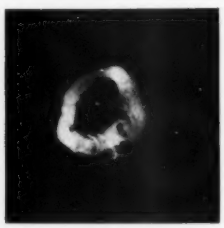
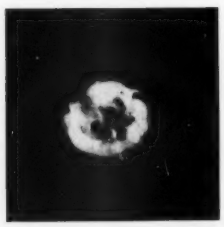
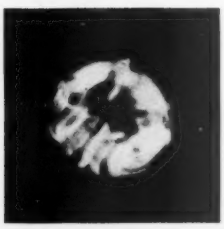
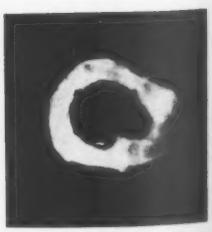


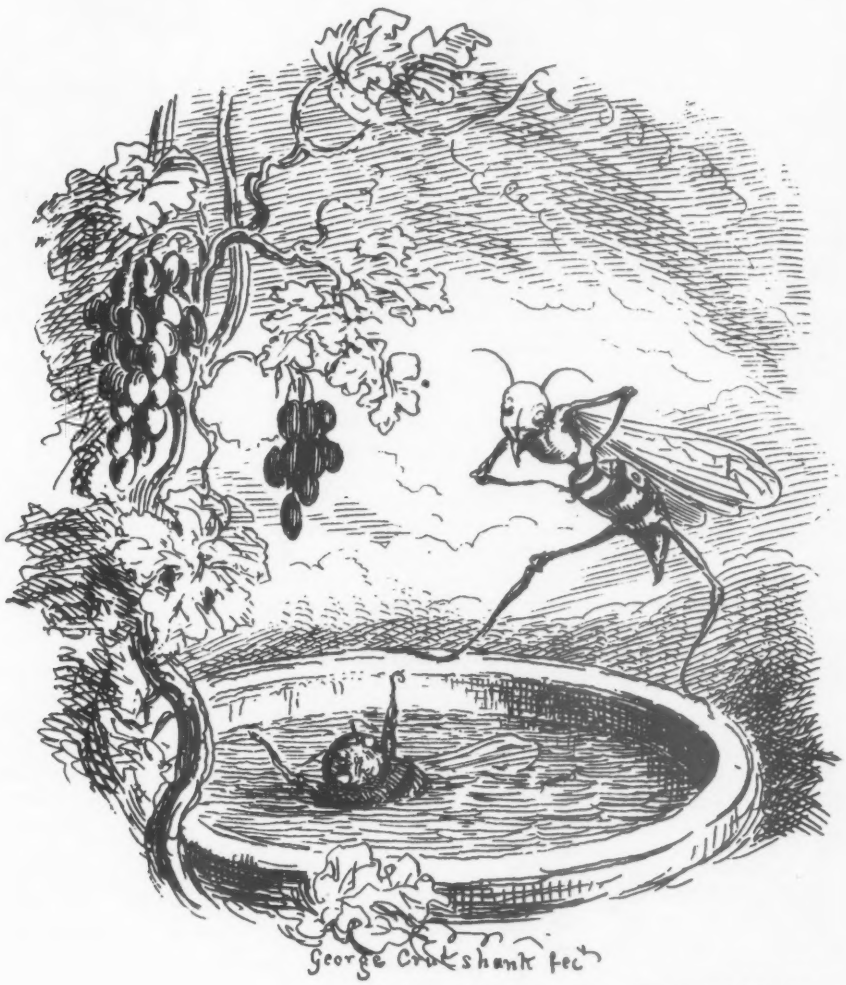






The author fills a toy gun with tobacco smoke, then "shoots" a series of smoke rings in laminar and turbulent states.

Werner Wolff, Black Star



And enquir'd with a sneer, as Bee struggled for life
"Any message, my friend, for your young ones or wife?'

A SELECTION OF

Fables

FOR THE NEW (OR ANY) YEAR

DOOMED to neglect like so many other writing by their listing as "children's classics," fables were originally intended for adults. They still have far greater significance to an adult reader than they do to a child. The morals which they draw are so basic and so seemingly obvious that adult readers have generally left fables in the kindergarten where they were first encountered. The confirmed literateur will probably be happy to abandon them to this oblivion; but the fine fables hold appeal for two groups: they have the colorful narrative and animal characters that appeal to children, but they have also the satire and literary skill that adults demand.

On this and the following pages appear illustrations from some of the volumes of fables in the John Work Garrett Library. Built by four generations of the Garrett family, it includes rare first editions, illuminated manuscripts, and some collections singular in their completeness. Not exceptionally large as such collections go, it is notable for the discrimination and taste which the Garretts used in collecting subjects of which they had real knowledge. Several years ago, upon the death of Mr. Garrett, the library, together with his home, Evergreen House, and his art collections, was left to the Johns Hopkins University.

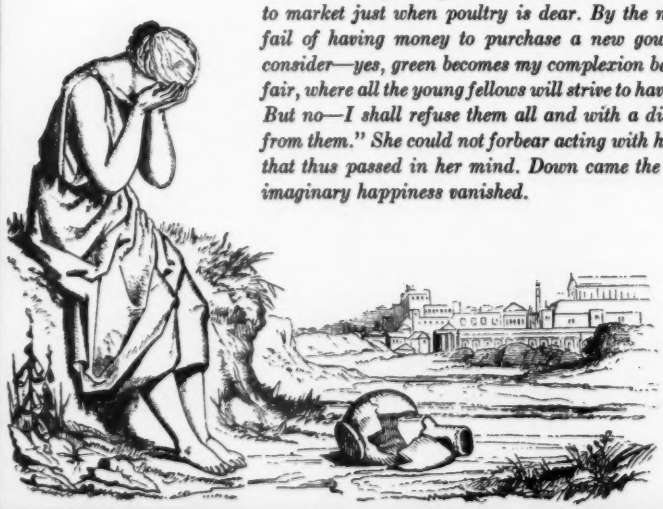
Items from the John Work Garrett Library were photographed for the Johns Hopkins Magazine by Blakeslee-Lane Studios.

Aesop's Fables

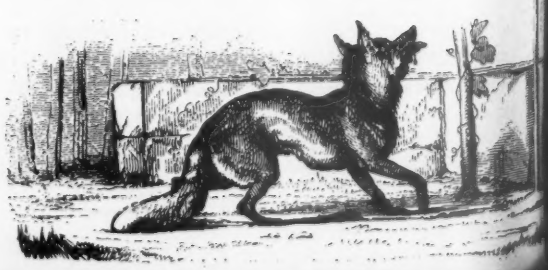
A Shepherd-Boy, who tended his flock not far from a village, used to amuse himself at times in crying out "Wolf! Wolf!" The whole village came running out to his assistance, but all the return they got was to be laughed at for their pains. At last one day the Wolf came indeed. The Boy cried out in earnest. But his neighbours paid no heed to his cries, and the Wolf devoured the Sheep. So the Boy learned, when it was too late, that liars are not believed even when they tell the truth.

One of the most famous editions of Aesop was published in 1848 in London by the Reverend Thomas James. It was one of the first books illustrated by John Tenniel, and the one which built his reputation. On the strength of it he was hired as a cartoonist for *Punch*, where his witty and goodhumored cartoons on politics earned him the position of chief cartoonist and eventually a knighthood. The text and illustrations on these two pages are taken from a copy of the James edition in the John Work Garrett Library.

A Country Maid was walking along with a can of Milk upon her head, when she fell to reflecting. "The money for which I sell this milk will enable me to increase my stock of eggs to three hundred. They will produce two hundred and fifty chickens, fit to market just when poultry is dear. By the new year I cannot fail of having money to purchase a new gown. Green—let me consider—yes, green becomes my complexion best. I will go to the fair, where all the young fellows will strive to have me for a partner. But no—I shall refuse them all and with a disdainful toss turn from them." She could not forbear acting with her head the thought that thus passed in her mind. Down came the milk! and all her imaginary happiness vanished.



A Fox, just at the time of [illegible], stole into a vineyard where the [illegible] Grapes were trellised up on [illegible] tempting show. He made many [illegible] and a jump after the luscious prize. But failing in all his attempts he muttered as he retreated, "Well, what does it matter. The Grapes are sour."



An Ass that was being driven along the road by his Master started on ahead and, leaving the beaten track, made as fast as he could for the edge of a precipice. When he was just on the point of falling over, his Master ran up to him; seizing him by the tail he endeavored to pull him back. But the Ass resisted and pulled the contrary way until the man let go his hold, saying, "Well, Jack, if you will be master, I cannot help it. A wilful beast must go his own way."

A Crow snatched a goodly piece of cheese out of a window, and flew with it into a high tree, intent on enjoying her prize. A Fox spied the dainty morsel, and thus he planned his approaches. "O Crow," said he, "how beautiful are thy wings, how bright thine eye! Thy breast is the breast of an eagle! Thy claws—I beg pardon—thy talons are a match for all the beasts of the field. O, that such a bird should be dumb and want only a voice!" The Crow, pleased with the flattery and chuckling to think how she would surprise the Fox with her caw, opened her mouth. Down dropped the cheese. The Fox snapped it up and observed as he walked away "that whatever he had remarked of her beauty, he had said nothing yet of her brains."

Men seldom flatter without some private end in view; and they who listen to such music may expect to have to pay the piper.

An Astronomer used to walk out every night to gaze upon the stars. It happened one night that, as he was wandering in the outskirts of the city with his whole thought rapt up in the skies, he fell into a well. On his holloaing and calling out, one who heard his cries ran up to him, and when he had listened to his story said, "My good man, while you are trying to pry into the mysteries of heaven, you overlook the common objects that are under your feet."

The Tortoise and the Hare: "Slow and steady wins the race."

From Aesop to Thurber: the story of the fable

AESOP, while not the first creator of fables, is certainly the most famous and influential. Known to us by retellings, rather than by any existing copies of his work, Aesop lived in a time when governments were growing from vague, relatively primitive modes of rule into organized units with specific laws and clear delineations of power. With little preparation for the change, the people were overwhelmed by countless debates and highflown orations on politics and public morality.

When Aesop appeared with his combination of wit and wisdom—and brevity—he was eagerly accepted despite his lowly background. King Croesus, strained by the heavy-handed teachings of Solon, delighted in the slave who cloaked his criticisms of politics and morals in humorous tales of foxes and hares. Aesop became the pet of high society. Both the wits and the sages considered a stock of Aesopian tales essential. Court advisers found that by using fables they could make criticisms of the king which would never have been tolerated in a franker form. Orators discovered the peculiarly effective appeal of such tales in turning the emotions of an audience. Aristotle was later to put fables in the realm of rhetoric rather than poetry; and Plato, while barring the poets from his ideal republic, was to include Aesop as a moral teacher.

Aesop came to be so highly regarded that he was sent through the country on royal missions. But the citizens of Delphi, who had long had a corner on wisdom in that ancient world, were fiercely jealous of the slave's popularity. One day when he was in their section of the country they seized him, and with cries of "Impiety!" and "Sacrilege!" they flung him over a precipice to his death.

According to legend, the death of Aesop was avenged.

Gesta Romanorum (below, *a copy of the 1493 edition printed in Strassburg*) *used familiar fables as religious texts for medieval monks. "The Grateful Lion" shown above is a version of Androcles and the Lion, but with a long and tedious moral attached.*

Folium XLIX

ficum beremi facuit. Terna sapia est. nuq; bospecum ad manendū de noca in domo alcui⁹ accipias ꝛc. Senex iste est mundus q̄ habet uxorem ulā in vroē. i. uanitatem de die in die crescit imitdo ꝛ noua pannos. Uti si un mūdo bospua uolueris sine dubio in mendū est ibi de mone q; nemo pōt deo ꝛ mundo fuire. Sara pe q̄ era regē Aspra uerūt demones sume q̄ sp mutat boiem spualiter occidere. Et si nō potuīt p se los quuntē cū barbeonsoze. i. carne que ad mo dum barbeonsoze rade uiuere cōs pilos. Caro p voluptatē suam rade uiuere quasi un ba psimo bomo recepit. Si si bō ad finē suū respicere. Sed mortē qua more debemus mori uel ubi uel qñ recederet a nobis omīo malus ac⁹. Sin deam⁹ ergo istas tres uir tutes tenere ꝛ sic poterim⁹ ad ciuitatē beauū peuenire. De bificatoꝛ memoria.

Capitulum cxi.

Quōdā mil:eo erat q̄ super oīa uenari dilexit. Accidit una diez q; ad uenandus pregressus leo clamosus ꝛ pedē mulu ostendit. Miles uo de equo descendit ꝛ spinam acutā de ei⁹ pede extraxit ꝛ unguentū uulneri apposuit ꝛ sanat⁹ eleo. Post hoc uo rex illius regni in eode nemore a casu prenabatur ꝛ illum leonē accepit ꝛ multo anmo secum nutrit. Miles ille ꝛ rege fortē cū ad eande fortitudinē fugā petere ubi oēs transeuntes spoliauit ꝛ occidit. Rex uo illi capitauit ꝛ ꝛei⁹ iniam dedit ut leoni daret ad deuorandū ꝛ q; nobil aliud ad comedendū ei daret ad ꝯ ille bonibilis leo milites deuorare. Miles uo cū in foueā esset precū mulu⁹ nimis expectās q; bonam q̄ deuorare. Leo uo cū unime respexit ꝛ cum nouitatis q⁹ habere ꝛ applausum ei fecit ꝛ lepte dieb⁹ sine cibo remansit. Uer uo cum hoc audisset admirabat fecit milē de fouea ei trahi ꝛ q̄ ei. Dic mihi carissime quō potuit Bestie q̄ leo tibi nocuit. Qui ait. Dñe a casu p fortitudinē ei⁹ q̄ leo ille claudicās mihi occurrebat. Ego uo spinam de pede ei⁹ extraxi ꝛ uulnus sanaui. ꝛ ideo ut credo mihi pepercit. Et rex. Et quo leo non nocuit tibi ego tibi parcam. amodo studeas ꝛ uoluntatem corrigere. Ille uo grās regi reddidit ꝛ post hoc in omnib⁹ est emendatus ꝛ sine ulā suā in pace.

Moralisatio.

Iste miles ille q̄ primus est. est bomo mundanus. q; quotidie studet quō bona mundana posse acquirere. Leo claudicans est ronis genus humanū q⁹ p peccatum primi parentis claudicabat animes spina. i. peccatum originale q̄ baptismum erat extracta. ꝛ cum unguento bonaꝛ uirtutū saluatō. Post hoc miles ꝛra regem dei ciperiē surgit quotiens moraliter peccat ꝛ uirtut⁹ spoliat quas in baptismo recepit. Sed leo. i. genus humanum capit quotiens diuinis precepta obligat ꝛ in foueam pnie ꝓicit. Si uo miles bomo peccatoꝛ in cade fouea ꝓicitur malum corpus et anime pōt ꝛ eam bonū q; saluē aie pōt mereri. Qui in nobis accidat ℔ Deo uolluntatē cuiuslibet bonū ꝛ ꝑfectum recte uidicantium.

Capitulum cxv.

Deodosi⁹ regnauit pulcre ꝛ lumē oculoꝝ amisserat q̄ quidā legem dedit q̄ quecūq; campana in palacio esset posita. et q̄cunq; causam aliquam ꝛ rectare haberet eo: dā campane ppius manibus pulsare. Ad cui⁹ pulsationē uterq; ad hoc erit consultus descederet ꝛ uincuq; iustiam faceret. Erat aūt quidam serpens q̄ sub corda campane nidum fecerat. ꝛ infra temp⁹ bue pullos genuit ꝛ cū pulli ambulare potuerant perrexit quodam die ad spacandū cum pullis extra cauernam. Cum vero serpens absens esset bufo nidum ei⁹ intrauit ꝛ occupauit. Serpens cum pullis redeuns ꝛ bufonem nidum occupantem uidēs cōtra eum pugnauit sed bufonem deuincere non potuit ꝛ sic bufo nidum occupauit. Serpens vero cum hoc prouisset cauebam

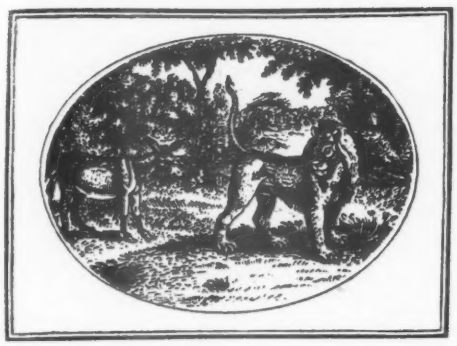
Grandville, one of the finest of nineteenth-century French caricaturists, is represented in the John Work Garrett Library by his illustrations for La Fontaine's fables. Grandville is especially known for the human expressions he shows on animals' faces.

II

LE CORBEAU ET LE RENARD.

Maître corbeau, sur un arbre perché,

SELECT FABLES.



THE LION AND THE ASS.

A CONCEITED Ass had once the impertinence to bray forth some contemptuous speeches against the Lion. The suddenness of the insult, at first raised some emotions of wrath in his breast; but turning his head and perceiving from whence it came, they immediately subsided; and he very sedately walked on, without deigning to honour the contemptible creature, even so much as with an angry word.

Thomas Bewick's Select Fables, *appearing in 1784, marked the beginning of modern wood engraving. Both artist and engraver, Bewick developed a new technical process which made feasible the reproduction of fine details.*

Erſter Geſang

Meine Tochter, es haben die Hunde den Leichnam gerettet.
Seht, hier liegt ſie! Er hat es getan, o nehmt es zu Herzen!

Und der König begann: Kommt näher, Grimbart, und ſehet,
Alſo faſtet der Klausner, und ſo beweiſt er die Buße!
Leb' ich noch aber ein Jahr, ſo ſoll es ihn wahrlich gereuen!
Doch was helfen die Worte! Vernehmet, trauriger Henning:
Eurer Tochter ermangl' es an nichts, was irgend den Toten
Nur zu Rechte geſchieht. Ich laſſ' ihr Vigilie ſingen,
Sie mit großer Ehre zur Erde beſtatten; dann wollen

Reynard the Fox *is an old fable, often retold, of a wily and vicious fox who dupes the community.* Above, *in Von Kaulbach's drawings for Goethe's famous version, Reynard swears repentance and a monkish life; later he raids the trusting chickens.*

Plagues visited the scene of the murder. Calamities befell the Delphians. As the tale of the innocent sage's death was passed around, the Delphians came to believe that their many troubles were a vengeance for their deed. Finally they offered a ransom in recompense, a ransom which was eventually paid to the grandson of Aesop's old master, and the proverb of Aesop's Blood remained to warn all of the fateful punishment exacted for murder of the innocent.

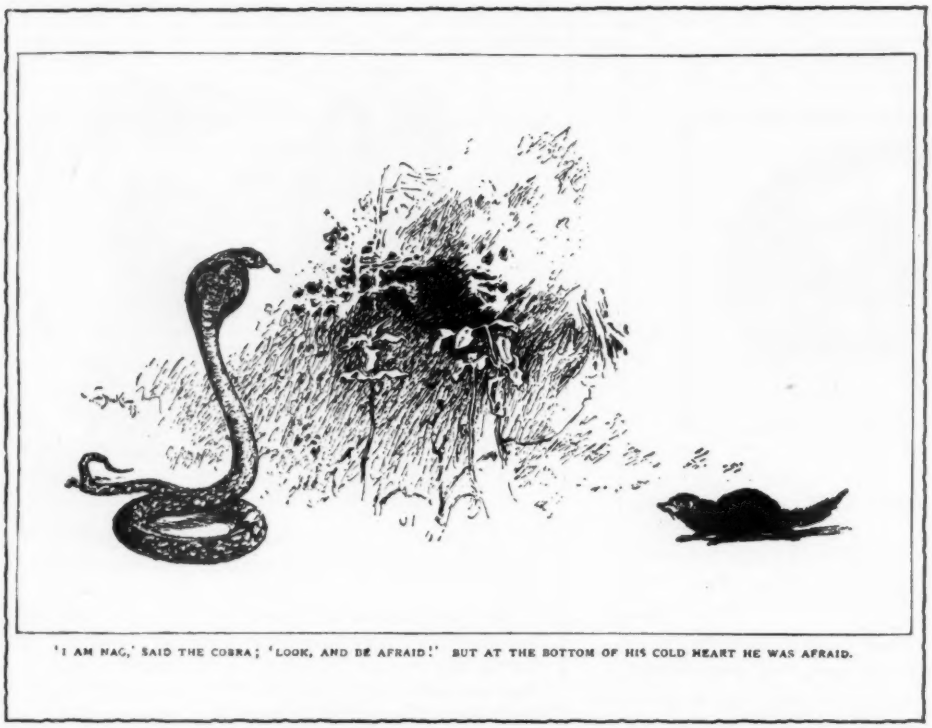
Meanwhile the legend of Aesop continued to grow. The wit in his tales was forgotten by newer generations, but the fables remained as expressions of basic wisdom. Some were recorded by Xenophon and Plutarch. Plato tells of Socrates' diverting himself in his last days by putting Aesop's fables into verse. And, as final high tribute, legend declared that Aesop appeared alive again to fight at Thermopylae.

As is evident in the Aesopian stories which we have, the fable differs in form from a simple tale in that it always makes a moral point. By close definition, myths are stories built up gradually by many tellers to explain a natural or a historic fact. Parables often employ animals to illustrate a point about human actions. But fables are created in finished form by one man (though they may be elaborated by many followers); the animal characters are endowed with human emotions and actions, and the moral is complete within the story, without added reference to man.

Fables seem to have been used very early, when uncivilized vocabularies were so small that fables provided almost the only way to express philosophical thought. Animals are easy to understand: a lamb means approximately the same thing to people of all times and all nations, and there are not likely to be any prejudices attached as there are when one speaks of men. Animals were probably used also because of the close knowledge that primitive men had of the beasts that formed such a large part of their daily lives. And fables remained popular because they are less offensive to rulers, and to mobs, than is the straight truth. La Fontaine, the great French fabulist, remarked that

"Fables in sooth are not what they appear;
Our moralists are mice, and such small deer.
We yawn at sermons, but we gladly turn
To moral tales, and so amused we learn."

It was with the parable of the ewe-lamb that Nathan



'I AM NAG,' SAID THE COBRA; 'LOOK, AND BE AFRAID!' BUT AT THE BOTTOM OF HIS COLD HEART HE WAS AFRAID.

Rudyard Kipling was one of the few modern authors to create stories in the image of the old fables. In his Jungle Book *the animals take on the qualities of human beings, with the virtues and the foibles of humans. In the scene illustrated above from "Rikki-Tikki-Tavi," Nag the mighty cobra covers his fear of the little mongoose by haughtily daring him to a fight.*

admonished David for taking Bathsheba. The earliest written fable is believed to be the Biblical story in the ninth chapter of Judges, when Jotham tells the story of the Trees and the Bramble to protest the taking of his kingdom by his brother Abimelech.

It is generally believed, however, that fables had been perfected long before then in the Far East. They passed from Hindustan through China and Tibet and Persia, and some claim that many of Aesop's tales are closely related to these earlier Eastern ones. The Orientals still use many fables in their daily conversation, often creating new ones to prove the point under discussion. But Aesop generally holds the position as greatest of the fabulists because of the simplicity of his stories and his confinement of each one to a single moral point. Later writers have tended to overload the fable with witty writing or with involved moralities.

This twisting of the tale out of its normal meaning was particularly common during the Middle Ages when fables were used as textbooks in the schools. *Gesta Romanorum* (known also as *Tales of the Monks*) was one compilation of fables intended as a manual for priests to use in preaching. Very colorful, they made easy and popular reading for the monks. For other readers, however, the attached morals were long and dreary. The 1493 copy of *Gesta Romanorum* in the John Work Garrett Library shows morals which frequently are longer than the fable itself; but later translations have greatly reduced or even eliminated these tedious maxims to restore the fable to its original form.

One of the perennial fables is the story of Reynard the Fox, a tale that was born around the tenth century and reworked by Latin, French, and German writers. The best-known version is that written by Goethe, many centuries after the tale originated, and its illustrators (samples by both Joseph Wolf and Wilhelm von Kaulbach appear in the Garrett Library) were of the finest. Reynard's story is a long and complex fiction of many incidents, so that there is some question as to whether it properly fits into the fable category. It is a tale of a cunning and brutal fox who lives by duping the other animals of his society; while the moral value of Reynard's own philosophy is highly questionable, the tale's satiric comments on politics and public morality permit it to be classed as a fable.

The only fabulist who gives real competition to Aesop's high ranking is Jean de la Fontaine, the French poet of the seventeenth century. The son of a moderately wealthy family, La Fontaine made brief tries at religion and law and then took over his father's position as deputy forest ranger in the duchy of Château-Thierry. He was past thirty before he started writing,

at first fitfully to brighten his leisurely rangership and then more seriously after he moved to Paris. He there formed one of the most famous of literary quartets with Racine, Boileau, and Molière, and he soon was considered one of the first men of French letters. He was most of the things that tradition asks of a French writer: personally charming, so hopelessly unbusinesslike that he was always in debt, and possessed of a naive absentmindedness made famous through many anecdotes.

His lasting writing consists of the *Contes* and the *Fables*. The *Contes*, a group of stories of love and domestic life, are light and witty and risqué enough to have caused trouble in the author's day and near-banishment from present reading. His *Fables*, however, have been universally popular. La Fontaine was a master teller of tales, and these light, vivid animal stories delight the child reader. He has a special advantage over Aesop in that his own phrasing is still available to us; like some other children's books (if they can be called that), such as *Alice in Wonderland* and *The Wind in the Willows*, his fables have both literary skill and adult subtlety in their satire.

The nineteenth century brought great improvements in engraving techniques and a resultant flood of illustrated books. An Englishman, Thomas Bewick, is considered the founder of modern wood engraving as a result of his development of new processes for treating and handling the wooden block. A fine artist as well as engraver, his illustrated collections of fables by Aesop and others are among the choice books in the Garrett Library. Many other illustrated compilations of old fables were made, and on this and the preceding pages are reproductions of such fine artists as John Tenniel (most familiar for his illustrations of *Alice in Wonderland*), Wilhelm von Kaulbach, and two illustrators of La Fontaine: Grandville, with gay and humorous drawings, and Gustave Doré, with comparatively grim ones.

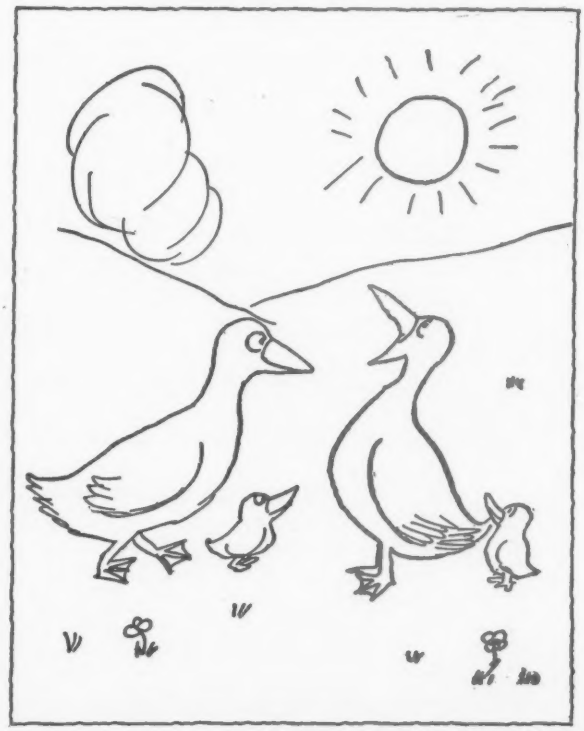
New fabulists appeared too. George Cruikshank's *The Bee and the Wasp* was published around the middle of the nineteenth century. Joel Chandler Harris created *Uncle Remus*. Rudyard Kipling's *Jungle Book* ranks with the fables, and his *Just So Stories* come very near the requirements for that category. Occasional fables have been produced by such writers as Anatole France and Oscar Wilde.

But in late years most authors have wandered far afield in their composition of fables. The designation has been used often enough, but the story has usually turned out to be no more than a fantasy, often satiric but rarely moral. The striking exception is James Thurber; his *Fables For Our Time* are racier and sharper than those of his famous predecessors, but they have nevertheless the quality of fine fables.

The gay fables of La Fontaine were sometimes made grimly moralistic in the illustrations by Gustave Doré. An unusually skillful draftsman, Doré specialized in illustrating books of a religious or historic nature, notably Paradise Lost.

THE FROGS WHO ASKED FOR A KING.

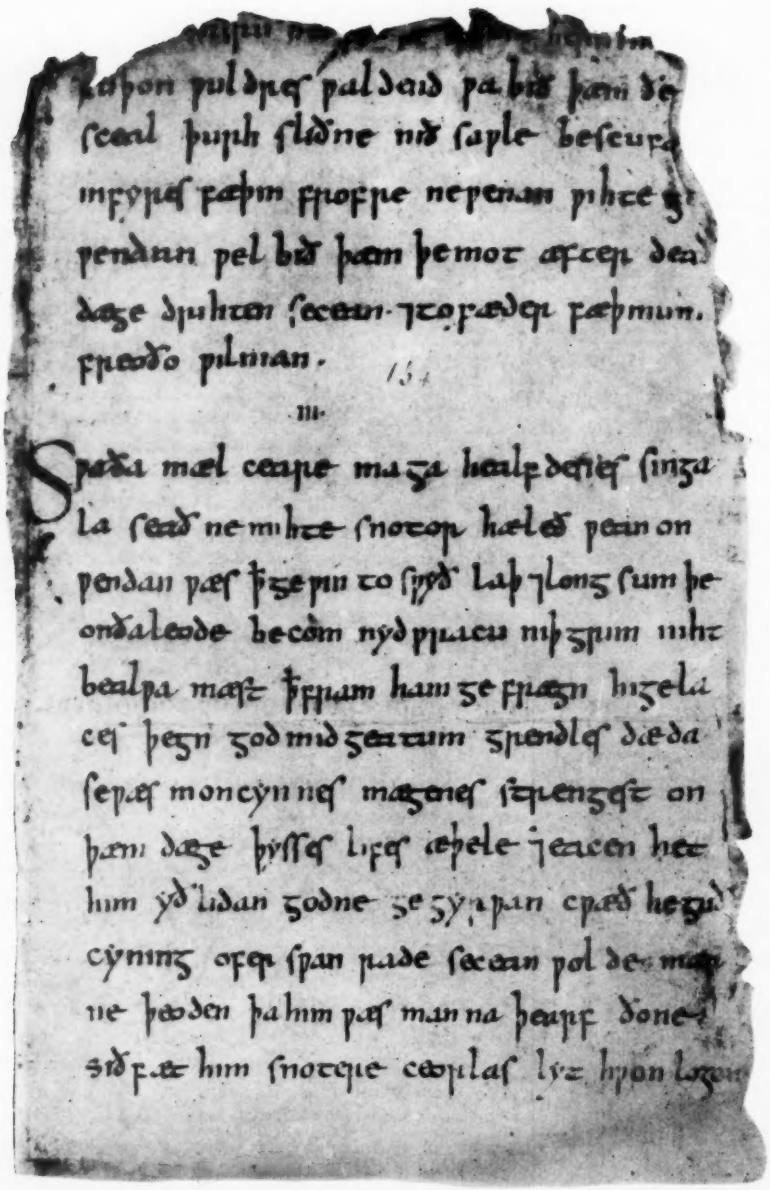
James Thurber is probably the only real fabulist of the present day. In Fables For Our Time *he boosts his apparently simple stories with sarcasm and contemporary slang; "The Very Proper Gander" tells of a set of gossiping animals on a witch-hunt.*



Reproduced by permission of James Thurber

An English professor's literary detective work has uncovered some illuminating facts in

The Fabulous Beowulf



The Johns Hopkins Press

PROBABLY more words have been written about the mighty epic poem *Beowulf* than about any other piece of English literature except *Hamlet*. Yet it is only through a series of almost miraculous coincidences that modern scholars know anything about *Beowulf* at all. And it is only because some of these scholars possess a happy knack for performing some amazingly fancy feats of detective work that today, more than ten long centuries after its writing, the poem is finally becoming known, virtually in its entirety, to us.

Beowulf, one of the finest epics ever produced in England or any other country, was put on paper by an unknown poet of the sixth or seventh century A. D. (there is disagreement as to exactly when). It is a magnificent piece of work, important for many reasons. First, it is stimulating reading—in the original Old English, if one has learned to understand that language, or in good translations. It contains historical passages which are considered indispensable to a knowledge of Germanic history and legend. It has been called, and is generally regarded as, "the most precious relic of Old English and indeed of all early Germanic literature."

The only surviving manuscript of Beowulf *is largely lost today. In 1731 it was badly scorched* (left); *afterward, important portions of its brittle pages were destroyed by handling. But thanks to scholarly sleuthing, most of the mighty epic is now known.*

Story

Jack Engeman

Kemp Malone, Caroline Donovan Professor of English Literature at Johns Hopkins, has spent two years supervising the compilation of a monumental facsimile reproduction, being published this winter, of two Beowulf *transcripts which hold many keys to the secrets of one of English literature's greatest works.*

But the thread—the only thread—which has held *Beowulf* together from the tenth century to the twentieth has been an incredibly thin one: a lone manuscript, written around 1000 A.D., is our only direct connection with the original poem. How this thread—sometimes frayed and strained almost to the snapping point—has managed to stay unbroken until a time when modern scholars could use it to spin a useful fabric of knowledge is a story which at times comes close to the excitement of melodramatic adventure fiction. It abounds in episodes of hairbreadth survivals and rewarding scholarly sleuthing.

Dr. Kemp Malone, the Caroline Donovan Professor of English Literature at Johns Hopkins, not only knows the fabulous *Beowulf* story (he is one of the world's leading *Beowulf* authorities), but has himself played an important detective role in it. This winter, as editor of one of the most monumental works yet published on the poem (about which, more later), he adds an enormously useful tool to the equipment of *Beowulf* investigators. In it, one can catch much of the excitement of the scholars' attack on the centuries-old mysteries of a priceless piece of our heritage—an excitement which stems from the very history of the discovery and survival of the poem itself.

THREE and a half centuries ago there lived in England an avid collector of ancient manuscripts, Sir Robert Bruce Cotton (a man whose lifetime included service to the Crown, for which he was knighted; opposition to the Crown, for which he was tried in star-chamber proceedings; and implication in a murder, for which he was imprisoned but pardoned upon payment of five hundred pounds). In Cotton's collection was the tenth-century *Beowulf* document. His library was sealed by Charles I, whom he displeased; it was added to by his son; and it was presented to England in 1700.

For years after that, *Beowulf* remained practically unknown. A cataloguer named Humphrey Wanley published a brief (and erroneous) description of the manuscript around 1705 and quoted a few lines from the poem. His item went practically unnoticed, even by antiquaries. But thanks, oddly enough, to its erroneousness, it was eventually to have an important role in the *Beowulf* story.

Three decades later *Beowulf*, still practically an undiscovered treasure, was almost lost for all time. There was not yet a British Museum; the manuscript, with the rest of the Cottonian library, was kept at Ashburnham House. In 1731 an event occurred there which has influenced man's knowledge of *Beowulf* ever since: the collection was hit by fire. To all appearances, only the outer edges of the *Beowulf* manuscript were scorched. But much later it turned out that serious damage had been done.

The British Museum was founded in 1753 and the Cottonian collection became a part of it. The still-obscure *Beowulf* manuscript lay for a long time, its fire-seared pages brittle and unprotected but still fairly intact, undisturbed on a library shelf.

Then one of those "lucky accidents" occurred which dot the history of the

survival of the *Beowulf* poem. The accident had its beginnings in the brief catalogue item written by Humphrey Wanley at the beginning of the century, the item which in England went almost unnoticed for decades after its publication. It finally caught the eye not of an English "Saxonist," whom one might expect to have been looking for such things, nor even of an Englishman. The "discoverer" of the Wanley note—and thence a key figure in the *Beowulf* story—was an Icelander serving in Denmark in the Danish civil service. His name was Grímur Jónsson Thorkelin.

THORKELIN'S interest was not in English literature, but in early Danish history. That his curiosity about *Beowulf* and his subsequent actions have provided one of the most valuable sources of information about the English epic is truly an accident; it came about because he interpreted Wanley's catalogue item as describing a document which might furnish him with Danish historical information. Believing this—and not because of any suspicion that he might be uncovering an important work of literature—he got a royal grant enabling him to go to England in 1786 to examine the *Beowulf* manuscript. When he returned to Denmark, he took with him two copies of the great poem. Today these two copies provide an essential link—and in some places the only link—with the original work. For since then the crumbling of the fire-scorched Cottonian manuscript has gone far, largely through handling, and important parts of it are lost. (British Museum authorities finally awoke to the need of taking action; but even their remedial steps have resulted in some loss of the *Beowulf* text: quite a few letters are now hidden by a frame-line protective binding in which the manuscript has been placed to prevent further crumbling.)

Thorkelin's copies are now in the Great Royal Library in Copenhagen. But even in *their* survival, there is an element of strange fate. For of all of Thorkelin's work in England, these are the only ones which were not wiped out in the British fleet's bombardment of Copenhagen in 1801.

THIS winter, in Dr. Malone's volume, the Thorkelin copies of *Beowulf* are being published for the first time. (Distribution of the volume is being handled in the U. S. and Canada by the Johns Hopkins Press. It is the first instalment of an ambitious literary project being undertaken under the patronage of one of English literature's most vigorous champions, Winston S. Churchill: the reproduction of early English manuscripts in facsimile form.)

Bettmann Archive

The demon of evil, with his fierce ravening, greedily grasped them.

The first Thorkelin transcript was, the evidence shows, done by a hired copyist (*see top photograph, opposite page*). Even as this man handled the Cottonian manuscript, parts of its pages crumbled and were lost—but not, usually, until they had been transcribed. Clearly not able to understand what he was copying—an analysis of his handwriting uncovers this fact—he tried to reproduce, letter for letter, the tenth-century insular hand in which the Cottonian manuscript was written. "Like any beginner," Dr. Malone points out, "he made his characters large at first (that is, large for him), but as he became more proficient they grew smaller. His insular hand in its maturity is markedly small, agreeing in this respect, one may conjecture, with his ordinary hand."

Bettmann Archive

Beowulf shears off the head of Grendel.

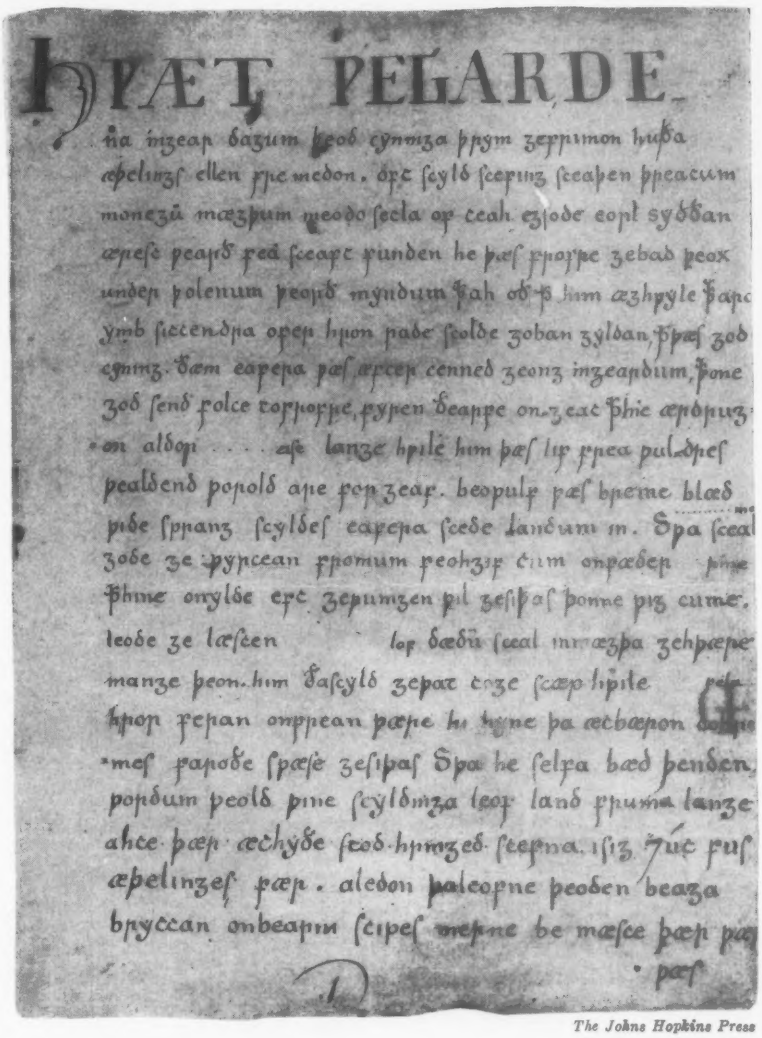
Having thus determined that there are two types of handwriting—even though there was only one copyist—one may find where the copyist has proof-read his transcript and (in his smaller, "mature" characters) made corrections. One can figure out his methods of working, for there are extra-large blank spaces which he left when a passage in the original was illegible to him and which he sometimes went back and filled in. There are other missing words (as can often be determined by comparing his transcript with surviving parts of the Cottonian document) for which he left no blank space; these, scholars can deduce, were omitted by error. And so on: point by point, scholars can examine, compare, analyze.

A few months or weeks later, Thorkelin himself made a transcript. His is copied not only word for word but also line for line and page for page. It is in Thorkelin's own eighteenth-century handwriting, not in the insular hand. Here, too, there are two handwritings: one, Thorkelin's earlier hand, and the second, Thorkelin's hand many years later as he prepared an edition of the poem. Here, too, there are errors, but of a different sort from that in the first transcript; they were due not to ignorance, primarily, but to features of Icelandic orthography (Thorkelin was, the reader will recall, an Icelander). Dr. Malone has counted 599 cases where Thorkelin wrote *d* for *eth* (ð) and 1,114 cases where he first wrote *d* and then (in another ink) went back and crossed the *d* and thus turned it into *eth* (ð).

DR. MALONE spent two years preparing the Thorkelin facsimile publication. Now, he is tackling the Cottonian manuscript itself. Meanwhile, in the hands of scholars, through the new volume, the Thorkelin transcripts will be further studied and analyzed—and the *Beowulf* story further clarified.

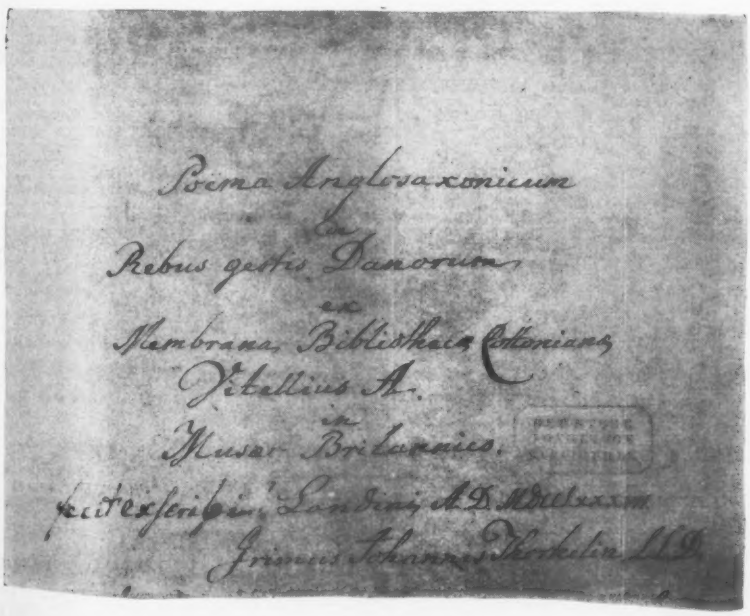
Two key transcripts

In 1786, by what appears to have been an odd accident, an Icelandic scholar named Grímur Jónsson Thorkelin was enabled to travel from Denmark to England to examine the scorched *Beowulf* codex. He came back with two transcripts, made before the original manuscript had deteriorated badly. By lucky quirks of fate (*see text*), they have managed to survive. Now, under, Professor Malone's editorship, they are being published for the first time. They provide valuable clues to the full and correct text of the classic poem.



The first Thorkelin transcript was made by a hired copyist who clearly did not understand the Beowulf *text and who apparently knew no Old English at all. He reproduced, letter by letter, what he saw in the manuscript. Here is his first page, beginning "What, we of the Spear-Danes..." He made many mistakes, but by comparing his work with that in the second transcript* (below) *and with that which can still be seen in the original manuscript, scholars can detect most of his errors.*

The Johns Hopkins Press



The second transcript was made by Thorkelin himself, evidently after the one above but in the same year (1787). It was, unlike the first transcript, copied line for line and page for page; but Thorkelin did not attempt, as did his hired copyist, to imitate the insular hand, preferring his own eighteenth-century penmanship. He, too, made errors; but they were quite different from those made by the first copyist and most frequently were due to a feature of eighteenth-century Icelandic orthography: the use of d *for* eth. *Professor Malone has counted 599 such substitutions in Thorkelin's work.*

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survival of the *Beowulf* poem. The accident had its beginnings in the brief catalogue item written by Humphrey Wanley at the beginning of the century, the item which in England went almost unnoticed for decades after its publication. It finally caught the eye not of an English "Saxonist," whom one might expect to have been looking for such things, nor even of an Englishman. The "discoverer" of the Wanley note – and thence a key figure in the *Beowulf* story – was an Icelander serving in Denmark in the Danish civil service. His name was Grímur Jónsson Thorkelin.

THORKELIN'S interest was not in English literature, but in early Danish history. That his curiosity about *Beowulf* and his subsequent actions have provided one of the most valuable sources of information about the English epic is truly an accident; it came about because he interpreted Wanley's catalogue item as describing a document which might furnish him with Danish historical information. Believing this and not because of any suspicion that he might be uncovering an important work of literature – he got a royal grant enabling him to go to England in 1786 to examine the *Beowulf* manuscript. When he returned to Denmark, he took with him two copies of the great poem. Today these two copies provide an essential link – and in some places the only link – with the original work. For since then the crumbling of the fire-scorched Cottonian manuscript has gone far, largely through handling, and important parts of it are lost. (British Museum authorities finally awoke to the need of taking action; but even their remedial steps have resulted in some loss of the *Beowulf* text: quite a few letters are now hidden by a frame-line protective binding in which the manuscript has been placed to prevent further crumbling.)

Thorkelin's copies are now in the Great Royal Library in Copenhagen. But even in *their* survival, there is an element of strange fate. For of all of Thorkelin's work in England, these are the only ones which were not wiped out in the British fleet's bombardment of Copenhagen in 1801.

THIS winter, in Dr. Malone's volume, the Thorkelin copies of *Beowulf* are being published for the first time. (Distribution of the volume is being handled in the U. S. and Canada by the Johns Hopkins Press. It is the first instalment of an ambitious literary project being undertaken under the patronage of one of English literature's most vigorous champions, Winston S. Churchill: the reproduction of early English manuscripts in facsimile form.)

Bettmann Archive

The demon of evil, with his fierce ravening, greedily grasped them.

The first Thorkelin transcript was, the evidence shows, done by a hired copyist (*see top photograph, opposite page*). Even as this man handled the Cottonian manuscript, parts of its pages crumbled and were lost – but not, usually, until they had been transcribed. Clearly not able to understand what he was copying – an analysis of his handwriting uncovers this fact – he tried to reproduce, letter for letter, the tenth-century insular hand in which the Cottonian manuscript was written. "Like any beginner," Dr. Malone points out, "he made his characters large at first (that is, large for him), but as he became more proficient they grew smaller. His insular hand in its maturity is markedly small, agreeing in this respect, one may conjecture, with his ordinary hand."

Bettmann Archive

Beowulf shears off the head of Grendel.

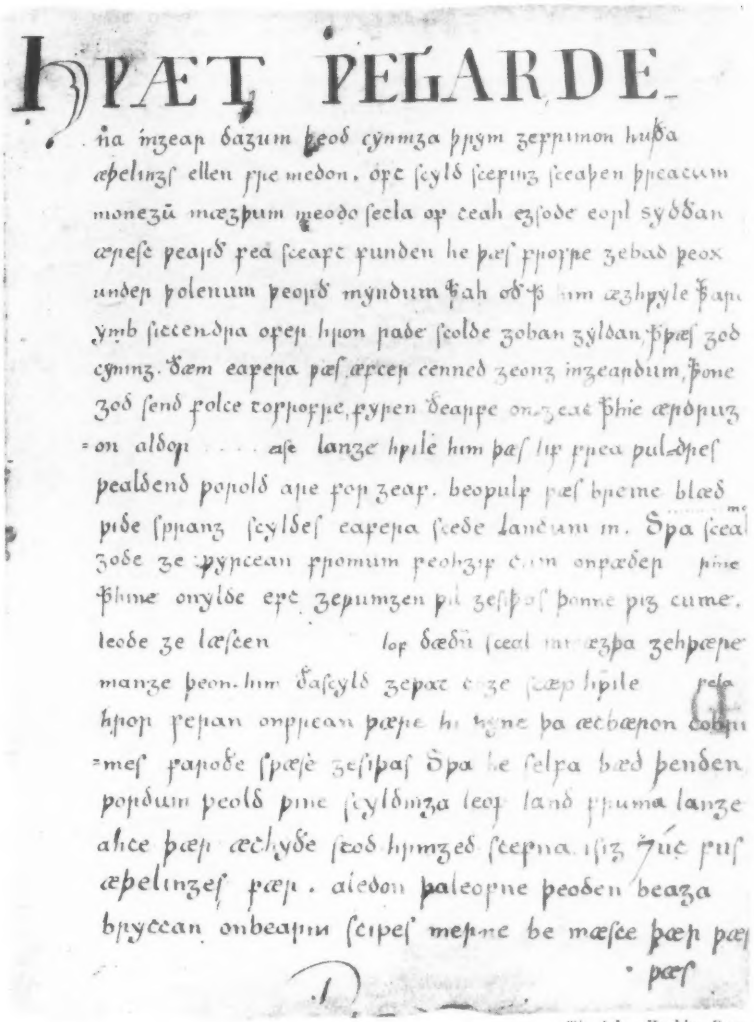
Having thus determined that there are two types of handwriting – even though there was only one copyist – one may find where the copyist has proof-read his transcript and (in his smaller, "mature" characters) made corrections. One can figure out his methods of working, for there are extra-large blank spaces which he left when a passage in the original was illegible to him and which he sometimes went back and filled in. There are other missing words (as can often be determined by comparing his transcript with surviving parts of the Cottonian document) for which he left no blank space; these, scholars can deduce, were omitted by error. And so on; point by point, scholars can examine, compare, analyze.

A few months or weeks later, Thorkelin himself made a transcript. His is copied not only word for word but also line for line and page for page. It is in Thorkelin's own eighteenth-century handwriting, not in the insular hand. Here, too, there are two handwritings: one, Thorkelin's earlier hand, and the second, Thorkelin's hand many years later as he prepared an edition of the poem. Here, too, there are errors, but of a different sort from that in the first transcript; they were due not to ignorance, primarily, but to features of Icelandic orthography (Thorkelin was, the reader will recall, an Icelander). Dr. Malone has counted 599 cases where Thorkelin wrote *d* for *eth* (ð) and 1,114 cases where he first wrote *d* and then (in another ink) went back and crossed the *d* and thus turned it into *eth* (ð).

DR. MALONE spent two years preparing the Thorkelin facsimile publication. Now, he is tackling the Cottonian manuscript itself. Meanwhile, in the hands of scholars, through the new volume, the Thorkelin transcripts will be further studied and analyzed – and the *Beowulf* story further clarified.

Two key transcripts

In 1786, by what appears to have been an odd accident, an Icelandic scholar named Grímur Jónsson Thorkelin was enabled to travel from Denmark to England to examine the scorched *Beowulf* codex. He came back with two transcripts, made before the original manuscript had deteriorated badly. By lucky quirks of fate (*see text*), they have managed to survive. Now, under Professor Malone's editorship, they are being published for the first time. They provide valuable clues to the full and correct text of the classic poem.



HWÆT WE GARDE

ña ingeap dazum þeod cynniga þrym gefrunon huða
æþelingas ellen fremedon, oft scyld scefing sceaþena þreatum
monegum mægþum meodo setla of ateah egsode eorl syððan
ærest wearð feasceaft funden he þæs frofre gebad weox
under wolcnum weorð myndum þah oðþæt him æghwylc þara
ymb sittendra ofer hron rade hyran scolde gomban gyldan, þæs wæs god
cyning. Dæm eafera wæs æfter cenned geong in geardum, þone
god sende folce tohrafne, fyren dearfe on geat þhic æfter wearð
=on aldor . . . . . ase lange hwile him þæs lof weox wide sprang
wealdend worold ade for geap. beowulf wæs breme blæd
wide sprang scyldes eafera scede landum in. Ðra sceal
gode ge frycnan fromum feohgift oft onwæcnan þine
þhme onylde ofte gewunigen wil geþeoh þonne wig cume.
leode ge læsten lof dæda sceal in mægþa gehwære
manige geon. him dafenlic gerad oft ge sceal hwile rela
hroþ refan onwrican wære hi wyrse þa æcbæron cobin
=mes waroðe sprecð gesiraþ Ora he selra bæd benden
worolde wuldres wealdan meotud meoto sawle lange
ahte wæs æt hyðe stod hrungen stefna ofer flot fus
æþelinges fær . aldon bat-ofne beoden beaga
bregean onbearm scipes mere be mæste wæs wæs
· wæs

The first Thorkelin transcript was made by a hired copyist who clearly did not understand the Beowulf *text and who apparently knew no Old English at all. He reproduced, letter by letter, what he saw in the manuscript. Here is his first page, beginning "What, we of the Spear-Danes. . ." He made many mistakes, but by comparing his work with that in the second transcript* (below) *and with that which can still be seen in the original manuscript, scholars can detect most of his errors.*

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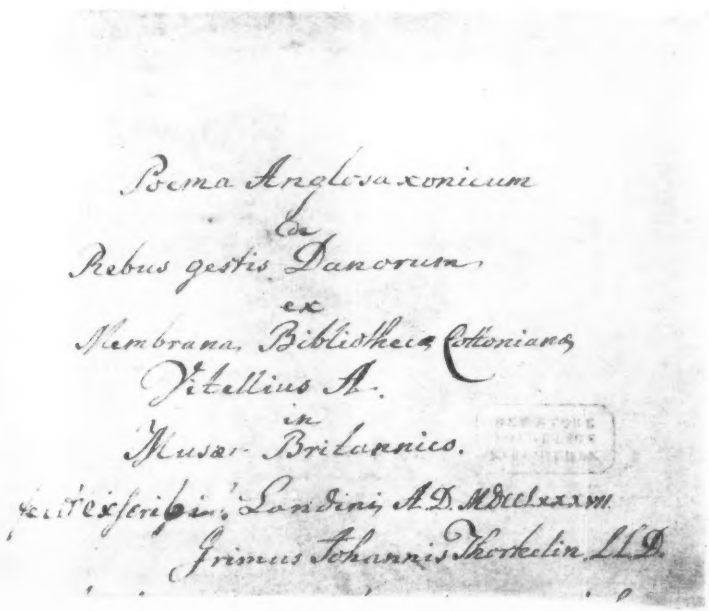

Poema Anglosaxonicum
De
Rebus gestis Danorum,
ex
Membrana Bibliothecæ Cottonianæ
Vitellius A.
in
Musæo Britannico.
descriptum Londini A.D. MDCCLXXXVII.
Grimus Johannis Thorkelin LL.D.

The second transcript was made by Thorkelin himself, evidently after the one above but in the same year (1787). It was, unlike the first transcript, copied line for line and page for page; but Thorkelin did not attempt, as did his hired copyist, to imitate the insular hand, preferring his own eighteenth-century penmanship. He, too, made errors; but they were quite different from those made by the first copyist and most frequently were due to a feature of eighteenth-century Icelandic orthography: the use of d *for* eth. *Professor Malone has counted 599 such substitutions in Thorkelin's work.*

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NEWS at Johns Hopkins

A digest of developments at the University and Hospital in recent weeks

FIRST STEP

When Abraham Krieger, president of Sinai Hospital in Baltimore, recently announced the appointment of Dr. Harry H. Gordon as full-time chies of staff in pediatrics, a simultaneouf announcement was made by President Detlev W. Bronk and W. Frank Roberts of Johns Hopkins: Dr. Gordon was also being appointed associate professor of pediatrics at the Hopkins School of Medicine and pediatrician on the staff of the Hopkins Hospital.

The announcements opened a new chapter in hospital history in Baltimore; for the naming of Dr. Gordon marked the first time that a Hopkins medical appointment had been extended, by joint agreement, to a doctor on the staff of another hospital. It was the initial step in a program which is expected to be of far-reaching importance.

More than two years ago physicians associated with Sinai proposed that full-time chiefs of staffs be appointed in the major fields of medicine at Sinai. Since then, the proposal has been approved, and in the fall of 1951 it was revealed that Sinai was seeking full-time clinical chiefs of staff for the first time in its history. In this plan, it was then announced, Johns Hopkins would have an important part. For "in order to attract the best available doctors to these positions," Sinai and Hopkins officials said, "it is recognized that academic standing is essential, along with facilities and funds for research as well as the opportunity for clinical investigation and undergraduate and postgraduate medical teaching."

As a result, under the new plan, the doctors approved for the Sinai posts will also receive dual Hopkins positions as associate professors on the School of Medicine faculty and as members of the Hospital staff. Selection of doctors for the Sinai full-time posts will be made by a joint committee representing both institutions. And "in carrying out their functions of patient care, teaching, and research," the plan provides, "each institution will make such use of the other's facilities as may be mutually determined and the free interchange of resident house staffs on appropriate occasions."

Dr. Gordon, before his Sinai and Hopkins appointments, was professor of pediatrics at the University of Colorado School of Medicine and pediatrician-in-chief at the Colorado General Hospital and the Denver General Hospital. He has recently completed a term as president of the Society for Pediatric Research. His appointment brings to Baltimore "an outstanding physician of international reputation," the joint Sinai-Hopkins statement said. "We feel confident that Dr. Gordon's appointment is an important first step . . ."

HISTORY LECTURESHIP

At the University, a new endowed lectureship has been established in English history, with emphasis on its legal and constitutional aspects. To be known as the John Hinkley Lectures, they were established with funds left by the late Mr. Hinkley, a Baltimore lawyer and Hopkins alumnus. The first series of three lectures will be delivered next spring by Dr. Robert Livingston Schuyler, professor of history at Columbia University and current president of the American Historical Association.

THE FACULTY AND STAFF

● Three new members have been elected to the University Board of Trustees. They are Gary Black, vice chairman

Homewood House at Johns Hopkins

Photograph by Blakeslee-Lane

of the board of the A. S. Abell Company, publisher of the Baltimore *Sunpapers;* Benjamin H. Griswold, 3rd, of the investment banking firm of Alexander Brown and Sons; and Stuart S. Janney, Jr., a partner in the law firm of Venable, Baetjer and Howard.

● PRESIDENT DETLEV W. BRONK was scheduled to make the dedicatory address at the opening of the new science laboratory at the University of Texas in Austin. He is scheduled to speak also at the Baltimore Authors Forum, at the installation of the DuPont Experimental Station Branch of RESA at Wilmington, Delaware on January 29, and at Haverford College on February 26.

● AT THE SCHOOL OF MEDICINE, Alan Foord, assistant professor of pediatrics, has been made director of the Division of School Health of the Baltimore City Health Department.

Harry H. Gordon has been named associate professor of pediatrics (*see "First Step," page 27*).

Victor A. Najjar, associate professor of pediatrics, received the Second Mead Johnson Award at the meeting of the American Academy of Pediatrics.

E. K. Marshall, Jr., professor of pharmacology and experimental therapeutics, has been elected vice president of the Mount Desert Island Biological Laboratory.

Elwood Henneman has been named assistant professor of physiology.

Arnold R. Rich, professor of pathology, as opening lecturer at the first international congress of the International Association of Allergists in Zurich, has received an honorary Doctor of Medicine degree from the University of Zurich "in recognition of his merit in the realm of experimental pathology, especially in the investigation of the pathogenesis of tuberculosis."

H. William Scott, Jr., associate professor of surgery, has been named professor of surgery at Vanderbilt University School of Medicine, director of the department of surgery, and surgeon in chief at Vanderbilt University Hospital.

Henry T. Bahnson has been named assistant professor of surgery.

Robert S. Anderson has been named assistant professor of military science and tactics.

● IN THE FACULTY OF PHILOSOPHY, Joseph T. Singewald, Jr., professor of geology, represented Johns Hopkins at the first inter-American conference on mineral resources in Mexico City.

Arno Schirokauer has been named acting chairman of the department of German.

George Boas, professor of the history of philosophy, delivered an address, "The Rediscovery of America," at the opening of the Karolik Collection at the Boston Museum of Art, and he gave the principal address, entitled "Teaching the Humanities," at the faculty convocation of the University of Missouri in October.

● IN THE SCHOOL OF ENGINEERING, Donald D. King has been appointed lecturer in electrical engineering.

J. R. Weske has been appointed lecturer in mechanical engineering.

● AT THE APPLIED PHYSICS LABORATORY, William H. Avery has been awarded the American Rocket Society's C. N. Hickman award for 1951 for his work in the field of solid propellant rocket propulsion.

Alexander Kossiakoff has been named assistant director of APL.

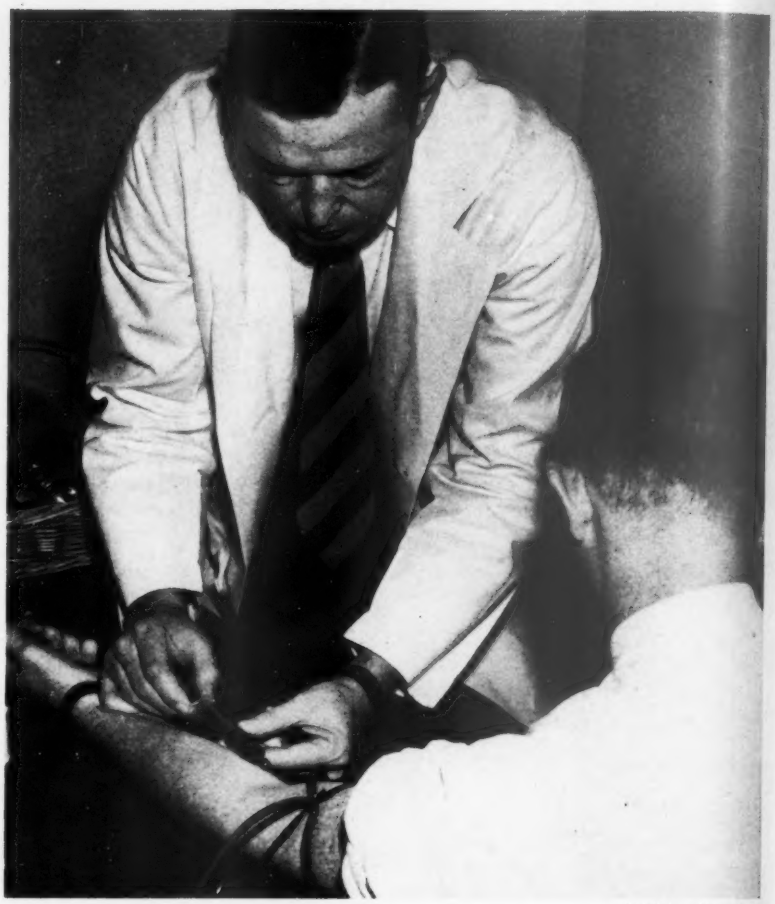
New members of the APL staff include Charles R. Leutz, formerly a manufacturer of electronic equipment;

James L. Keirsey, of the Ordnance Aerophysics Laboratory at Daingerfield, Texas;

George W. Luke, Jr., who recently received his master's degree from Northwestern University;

Lowell N. McClung, formerly of the University of Texas;

James H. Hunter, a mathematician from the University of Michigan.



Baltimore News-Post

More than a million Americans, doctors estimate, have diabetes but don't know it. To help find them, a detection campaign was conducted recently in more than six hundred U. S. communities. A test, requiring only ten to fifteen minutes, was made without charge. Here a Baltimorean takes it at Johns Hopkins.

DEATHS

(*Dates are 1951, unless otherwise noted.*)

Nellie Eastman Alcorn, '11 (Nurs.), July 8.

Clement Harrisse Arnold, M.D. '18, July 9, 1949.

Jack W. B. Ballenger, '19–'20 (Engr.), October 30.

William Benjamin Borden, Dr. P. H. '31, May 15, 1949.

Letitia Bradley, '00 (Nurs.), August 20.

Ada M. Carr, '93 (Nurs.), June 28.

Bertram H. Catzen, '09–'10 (Arts), October 28.

T. Homer Coffen, M.D. '06, January 9.

Jacob Jones Coons, M.D. '02, July 25.

John Alden Crane, B.A. '07, November 3.

Ada Rawlins Cresap, '10 (Nurs.), August 20.

Hilda North Dulac (Mrs. Victor), M.A. '22 (Arch.), g. '22–'24, March 18.

Ralph Torrey Edwards, M.D. '04, October 12.

Grace L. (McCaulley) Hammaker, g. '25–'26 (Math.), October 30.

John Alan Haughton, B.A. '03, g. '03–'04 (Rom. Lang.), November 11.

George Hines, g. '96–'98 (Engl.), March 28, 1950.

George Edward Harcourt Johnson, '22–'23 (Arts), March 27.

William Lee Judefind, Ph.D. '20 (Chem.), November 14.

Chandrakant G. Kulkarni, M.D. '38, October 4.

Burton D. Myers, fac. '02–'03, February 28.

William Bradford Newcomb, M.D. '10, August 1.

Paul Padget, M.D. '27, fac. '31–'33, '34–'51, October 31.

Manuel A. Perez, '28–'30 (Hyg.), May 7.

Louis J. Pessin, Ph.D. '23 (Bot.), September 25.

H. Hewell Roseberry, Ph.D. '36 (Physics), October 26.

E. King Schultz, Sr., '08–'09 (arts), October 20.

James Ignatius Shannon, g. '06–'08 (Physics), September 8, 1950.

Stephanie Ford Smith (Mrs. H. Earle), g. '13–'14 (Engl.), January 20.

Charles Sydney Smith, Ph.D. '06 (Lat.), October 18.

John Abram Spencer, '33–'34 (Med.), October 26, 1948.

Thomas Stran Summers, B.A. '25, November 3.

Edward Taylor, '23–'24 (Med.), fac. '24–'25, February 18, 1950.

Edward Edgar Thompson, Jr. B.S. '29, May 16.

Marian Wheeler, '21 (Nurs.), August 9.

ALUMNI NOTES

Paul G. Agnew, Ph.D. '11 (Physics), has been awarded the American Standards Association's first gold "standard medal." He was consultant to the association and its administrative head from its founding in 1919 until his retirement in 1947.

The late Mont Reid, M.D. '12, has been honored by the building of a new surgery pavilion in his name at Cincinnati General Hospital (*see column three*).

Allen V. Astin, fel. '28–'30, has been named acting director of the U. S. Bureau of Standards.

Harrison S. Brown, Ph.D. '41 (Chem.), fac. '41–'42, has been named professor of geochemistry at California Institute of Technology. He recently won the American Chemical Society's $1,000 prize in pure chemistry.

Daniel C. Darrow, M.D. '20, fac. '20–'22, received the Borden Award at the fall meeting of the American Academy of Pediatrics.

Lt. George R. Deakin, '49–'50, is a prisoner of war in North Korea.

Frederic Andrews Gibbs, M.D. '29, has been made professor of neurology at the University of Illinois Medical School. He is also the recipient of one of six Lasker Awards.

Herbert E. Ives, Ph.D. '08 (Physics), was awarded the Rumford Premium for 1951 at the meeting in November of the American Academy of Arts and Sciences.

Charles P. McCormick, '15–'16, '17–'18 (arts), has been elected president of the Quartermaster Association.

Lyman T. Meiks, M.D. '27, has been named professor of pediatrics and chairman of the department of pediatrics at the Indiana University School of Medicine.

William Albert Nitze, B.A. '94, Ph.D. '99 (French), distinguished service professor emeritus of Romance languages and literature at the University of Chicago, and Harold Cherniss, fac. '32–'46, distinguished professor of Greek at the Institute for Advanced Study, Princeton, were recipients of the honorary degree of doctor of humane letters at inauguration exercises for Chancellor Lawrence A. Kimpton at the University of Chicago. President Detlev W. Bronk received the honorary degree of doctor of science at the same exercises, as reported in these columns last month.

The late Mont Rogers Reid, M.D. '12, fac. '14–'22, has been honored by the dedication of a new $1,850,000 pavilion at the Cincinnati General Hospital which bears his name. B. Noland Carter, fac. '21–'22, and A. Ashley Weech, B.A. '17, M.D. '21, fac. '22–'28, presented recipients for the honorary degree of doctor of laws at the dedication ceremonies.

Ashton F. Richardson, g. '21–'22, '25–'26 (Geol.), has been named assistant professor of geology at Colby College.

Florence R. Sabin, M.D. '00, spec. fel. (anat.) '01–'02, fac. '03–'25, who is known as "Colorado's first woman of medicine," has been honored by the naming of a new $1,000,000 cancer wing at the University of Colorado Medical Center. Dedication of the wing, which is to be known as the Florence R. Sabin Building for Research in Cellular Biology, was scheduled to take place on December 1. A painting of Dr. Sabin was to be unveiled by one of her students at Johns Hopkins, Edith Boyd, M.D. '21.

Jerome William Schweitzer, Ph.D. '40 (Rom. Lang.), has been made professor of Romance languages at the University of Alabama.

Gordon S. Seagrave, M.D. '21, the "Burma surgeon," has been cleared by Burma's supreme court of the last treason charge brought against him for giving medical aid to rebel hill tribesmen. He had continued with his appeal so that he could return to his hospital at Namkham and treat his adopted hill tribe people.

Homer W. Smith, Sc.D. in Hyg. '21, has been elected president of the Mount Desert Island Biological Laboratory.

Harold W. Stoke, Ph.D. '30 (Pol. Sci.), has been appointed dean of the graduate school at the University of Washington.

Marvin R. Thompson, Ph.D. '34 (Biochem.), has been given the University of Minnesota's outstanding achievement award in the field of biochemistry.

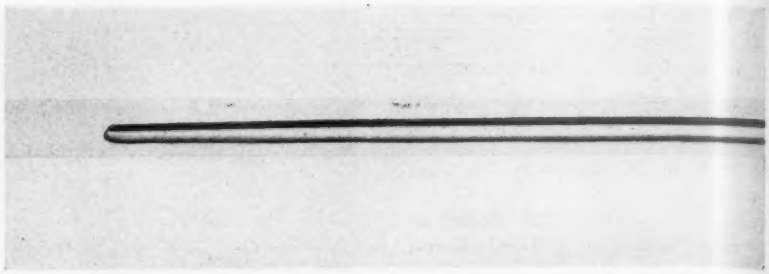
Charles Beaumont Wicks, Ph.D. '35 (Rom. Lang.), has been made head of the department of Romance languages at the University of Alabama.

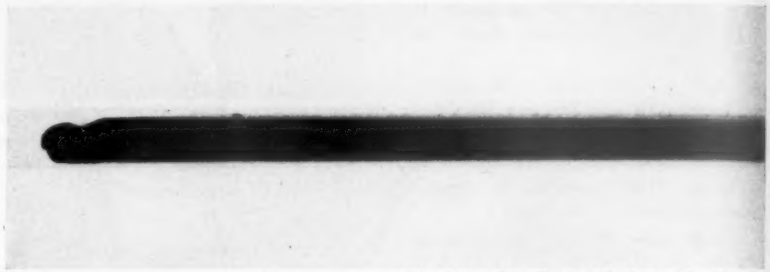
Patterns of Chaos

Continued from page 14

demonstrations because it is visible. The Johns Hopkins powerhouse chimney—or even a cigarette—provides a handy "laboratory."

Most of the scientific and technological importance of turbulence stems from these mixing and dispersing (or "transport") properties. The drag of an airplane, the efficiency of an engine, the energy balance of a star or a planet, the homogeneity of a dish of scrambled eggs—all of these will be better understood as we solve more and more of "the turbulence problem."





Physiological Div., Dept. of Medicine, Johns Hopkins

To test how injections can be mixed with blood, medical researchers set up a glass tube into which a hypodermic needle was inserted. With water flowing from left to right, injected fluid first flowed smoothly, did not mix appreciably with the water (above). *In order to get a good mixture, researchers increased the velocity of the injection. It was shot in rapidly enough to cause turbulence around end of needle. At a certain velocity, water and injection mixed completely, and the turbulence then died down quickly.*

In natural phenomena we can usually take a rather impersonal view of the effect, chiefly being sure to include it in studies of the momentum and energy balances of the systems. In most man-generated flows, however—and in some natural flows—turbulence may sometimes help, sometimes hinder the purposes of human beings. The standard aerodynamic illustration is the resistance (or "drag") of streamlined and of blunt bodies, respectively, as a function of the condition of flow in the "boundary layer"—the thin frictional region of air adjacent to the body's surface. Granting the desirability of low resistance to flow, we find that a turbulent state in this boundary layer is harmful for a slender body and beneficial for a blunt one. This is because the drag of a streamlined body is primarily "skin friction," while that of a blunt body is primarily "pressure drag," due to the unsymmetry in the distribution of pressure around the body.

In pipe or duct flows, a requirement of minimum energy loss is *laminar* flow—unfortunately not maintainable in most technical installations. On the other hand, a requirement of high heat-transfer rate, as in furnaces or cooling tubes, is *turbulence*, which may increase the transfer of heat or cold several hundred times over the laminar case.

The dispersive power of turbulence plays the villain in the natural phenomena of dust storms and river silt transport. Here we have no control over the general state of flow—the movement of wind and of water. We must try either to anchor the earth before it has a chance to become dust or silt, or to change the flow state locally at the boundary.

In essence, the theoretical turbulence problem which we must solve is the behavior of a randomly moving fluid which obeys at every instant an extremely complex set of differential equations; for these we still have no general solution. The infinite number of possible instantaneous velocity fields (in a pipe flow, for example) precludes an attempt to find a solution which describes the flow at every point at every instant. We are forced instead to a statistical approach.

The necessity for using statistical instead of completely deterministic methods does not in itself indicate a high degree of difficulty; the kinetic theory of gases in equilibrium (going back in concept perhaps to Leucippus and Democritus [300 or 400 B.C.], and mathematically formulated in present form by many scientists, especially Clausius [1857] and Maxwell [1859]) is a well-known illustration: it simply means that instead of attempting to describe a phenomenon completely, we seek, for example, only the most probable or the average state, plus some appropriate statistical measures of the nature and extent of deviations from it. Typical measures are the distribution of average turbulent energy in space, in time, and even with respect to frequency (the "energy spectrum"). Some of these quantities can now be estimated from present theories, but no progress has been made on the average occurrence probability for velocity fluctuations of various magnitudes, a quantity of basic importance.

The theoretical techniques of statistical mechanics have come far and accomplished much since the time of Maxwell, but they are apparently still inadequate for a general attack on the turbulence problem. In technical language, the chief difficulties are that (a) we deal with a continuum instead of a very large group of distinct and identifiable particles (a perfect illustration of what the physicist calls a "strong interaction"); (b) the system is "dissipative" instead of "conservative," i.e. the total amount of (mechanical) energy is not necessarily constant; and (c) the system is not in equilibrium. Until statistical mechanics can be generalized, our approach to the turbulence problem is confined in essence to the study of various averaged forms of the equations of motion, i.e. the Reynolds equations or generalizations thereof.

From the mathematical point of view, a principal difficulty is that the phenomenon is inherently "non-linear," so that no combination of solvable

synthetic "models" can be made to give the results of the real problem.

THANKS to the rapid development of electronic techniques, the measurement of many interesting properties of turbulent flows has been carried out in the past fifteen years. So much has been done that at present the experimental part of turbulence research is appreciably ahead of the theoretical part, in the sense that good measurements have been made of detailed properties for which no real theory has yet been developed. Since concomitant experimental and theoretical research is as essential to scientific research as are the two legs of a walking man, some of the most challenging current aspects of the problem lie on the theoretical side.

Most experimental investigations of turbulence are in flows generated in the laboratory for the purpose. The principal exceptions are, of course, those applied geo- and astro-physical problems which cannot be satisfactorily reproduced; those of the sun, for example, whose significant parameters cannot be matched with a reasonable expenditure of man-hours, cubic feet, and dollars.

By far the most powerful experimental device for turbulence research is the "hot-wire anemometer," which can be made to yield instantaneous velocity fluctuations in the form of a fluctuating electrical voltage. This irregular voltage either can be recorded on a film or can be studied further with various kinds of electrical instruments, to squeeze out the maximum amount of statistical information.

The sensitive element held in the windstream is a fine wire, heated electrically and cooled by the moving air. The fluctuations in air speed cause fluctuations in cooling rate and, ultimately, in the voltage drop across the wire; this fluctuating voltage is proportional to the velocity fluctuation, and can be electronically amplified and measured.

In order to minimize the necessity for lag compensation, the wires must be very small; diameters from five ten-thousandths of an inch down to five one-hundred-thousandths of an inch are in use. Since these measurements are only a few times the wave length of ordinary light, the smallest wires must be photographed with an electron microscope if size determination is desired. Nevertheless these fine wires are visible to the naked eye by light "scattered" from their surfaces, some-

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THE MONTH
at Johns Hopkins

A calendar of events:

December 20—January 31

HOLIDAYS

CHRISTMAS—Classes will be recessed from Thurs., Dec. 20 through Wed., Jan. 2. Offices will be closed on Mon. and Tues., Dec. 24 and 25, and on Mon. and Tues., Dec. 31 and Jan. 1.

REGISTRATION AND CLASSES

McCOY COLLEGE (late afternoon and evening courses for students working toward degrees or for non-degree credits, or simply seeking opportunities to widen their knowledge without working for credits)—Registration Sat., Feb. 2, 10 a.m.–4 p.m., Remsen Hall, Rm. 117; Monday, Feb. 4 through Wed., Feb. 6, 5:30–8:30 p.m., Remsen Hall, Rm. 117. Classes convene Thurs., Feb. 7.

DRAMA

FROM YEATS TO O'CASEY—Francis J. Thompson, Mon., Jan. 21, Levering Hall, 8:30 p.m. With selected plays. A Drama Evening sponsored by the Johns Hopkins Playshop. Admission, 60 cents.

THE THREE BEARS—Children's Educational Theater. Sat., Jan. 26, The Homewood Playshop; curtain 10:30 a.m. and 3 p.m. Single admission: children $.35, adults $.80. Tickets may be obtained from the Children's Educational Theater, The Johns Hopkins University, Baltimore 18, Md.; or from the Bonney Concert Bureau, 327 N. Charles St., Baltimore 1, Md.

ALUMNI MEETINGS

MODERN LANGUAGE ALUMNI—A Johns Hopkins Hour will be held in conjunction with the sixty-sixth annual meeting of the Modern Language Association in Detroit. Thurs., Dec. 27, 5 p.m., Bagley Room, Hotel Tuller, Grand Circus Park.

ELECTRICAL ENGINEERING ALUMNI—A Johns Hopkins Hour will be held in conjunction with the winter general meeting of the American Institute of Electrical Engineers in New York City, Wed., Jan. 23, 5 p.m.; alumni of the electrical engineering department will receive information on the place where the meeting will be held.

NOTE—Information about Johns Hopkins alumni organizations from coast to coast and overseas may be obtained by writing to the Director of Alumni Relations, the Johns Hopkins University, Baltimore 18, Md.

VARSITY SPORTS

NOTE—No admission fee is charged at any Johns Hopkins home athletic events. Persons who wish to attend Hopkins games during the 1951–1952 University year may obtain a free season ticket by sending a stamped, self-addressed envelope to the Department of Physical Education and Athletics, the Johns Hopkins University, Baltimore 18, Md. Alumni should address their requests to the Alumni Relations Office, the Johns Hopkins University, Baltimore 18, Md.

JHU Illustrations

BASKETBALL—Johns Hopkins vs. Gettysburg, Sat., Jan. 5 (Homewood, 8:45 p.m.); Towson State Teachers, Wed., Jan. 9 (away); Catholic, Fri., Jan. 11 (Homewood, 8:45 p.m.); Navy, Wed., Jan. 16 (away); Towson State Teachers, Sat., Jan. 19 (Homewood, 8:45 p.m.).

WRESTLING—Johns Hopkins vs. Delaware, Sat., Jan. 12 (Homewood, 8 p.m.); Loyola, Fri., Jan. 18 (Homewood, 8 p.m.).

FENCING—Johns Hopkins vs. Temple, Sat. Jan. 12 (Homewood, 2 p.m.).

TELEVISION

The Johns Hopkins Science Review is being carried by twenty-one stations:

Ames, Iowa: WOI	*New Orleans: WDSU
*Atlanta: WLTV	New York: WABD
Baltimore: WAAM	Omaha: KMTV
*Boston: WBZ	Pittsburgh: WDTV
Chicago:WGN	Rock Island: WHBF
Cleveland: WXEL	*Salt Lake City: KSL
Columbus: WTVN	*San Antonio: KEYL
*Dallas: WFAA	*San Francisco: KPIX
*Houston: KPRC	Schenectady: WRGB
*Johnstown: WJAC	Washington: WTTG
*Los Angeles: KTTV	

*In these cities, consult newspapers or call the stations for day and time of program. In other cities, broadcast time is Mondays, 8:30 p.m., EST.

COMING EVENTS

SECOND ANNUAL JOHNS HOPKINS UNIVERSITY DEBATE TOURNAMENT—Homewood, Fri. and Sat., Feb. 1 and 2. An intercollegiate tournament sponsored by the Debate Council of the Johns Hopkins University. Subject: "*Resolved*: That the federal government should adopt a permanent system of wage and price controls."

HALSTED CENTENNIAL—Events marking the one hundredth anniversary of the birth of William S. Halsted, first professor of surgery at Johns Hopkins. Meetings in Hurd Hall, Wed. through Sat. Feb. 6–9. Centennial Dinner, evening of Thurs., Feb. 7.

COMMEMORATON DAY—Fri., Feb. 22.

Since this issue went to press several weeks ahead of the period covered in this calendar, there may be last-minute changes and additions in the dates and times of events. It is advisable to confirm them by consulting the daily newspapers or by telephoning the Alumni Relations Office at Johns Hopkins.

Continued from preceding page

what as the stars are visible without any noticeable disk.

In supersonic flow and in some visibly radiating fluids (like the sun), optical methods of measurement can be used to supplant or to complement the hot-wire anemometer.

THE first turbulence work with which Johns Hopkins can be associated is that done by one of its most distinguished alumni, Dr. Hugh L. Dryden (Ph.D. 1919), currently director of the National Advisory Committee for Aeronautics. He pioneered in the development of the hot-wire anemometer as a quantitative laboratory instrument, and he made many of the earliest measurements of the properties and the effects of turbulence under various flow conditions. He continues to take an active interest in the turbulence problem.

At Johns Hopkins today, studies of various turbulent flows are going on in several departments. These studies run the gamut from practical to fundamental as well as from theoretical to empirical. The Microclimatology Laboratory at Seabrook Farms, the Oceanography Department, the Mechanical Engineering Department, the Applied Physics Laboratory at Silver Spring, and the Aeronautics Department all have work in progress involving a study of some of the more-or-less practical aspects of turbulent flow: its effect on skin friction, heat transfer, combustion in jet engines, mixing of fresh and salt water, and so on.

Perhaps more significant for a university is the fundamental experimental and theoretical research on the nature of turbulence which is going on in the Aeronautics Department and at the Applied Physics Laboratory. Coordinated experimental and theoretical research on the turbulence problem, which occupies a sizable fraction of the Aeronautics Department's effort, is conducted at less than a half-dozen other places in the world.

At the moment our attentions are focused on turbulence in a supersonic airstream, the nature of turbulent diffusion, the boundary phenomena at the edges of turbulent flows, and the pressure fluctuations in isotropic turbulence. New results from these particular aspects will almost certainly improve our understanding of the overall turbulence problem. They will take us a step closer to bringing order out of chaos.

Robert M. Mottar

NEXT MONTH

Next month, at the close of the University's seventy-fifth anniversary year, The Johns Hopkins Magazine will present a photographic feature of unusual interest: a gallery of new portraits of a group of distinguished men who have had a great part in building the University's eminence: the Johns Hopkins professors emeriti (*above*, Dr. Ethan Allen Andrews, professor emeritus of zoology). There will also be special and timely articles by Dr. George Boas, professor of the history of philosophy, and Dr. Alan M. Chesney, dean of the School of Medicine. Look for them in the February, 1952 issue of

THE JOHNS HOPKINS MAGAZINE

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